

2

DTIC FILE COPY

AD-A195 284

DOT/FAA/PM-87/32
DOT/FAA/PP-88/2

Program Engineering Service
Washington, D.C. 20591

Four Urban Heliport Case Studies

Deborah Peisen
Jack Thompson

Systems Control Technology, Inc.
1611 North Kent Street, Suite 910
Arlington, Virginia 22209

March 1988

Final Report

DTIC
ELECTE
JUL 08 1988
S D
H

This document is available to the public
through the National Technical Information
Service, Springfield, Virginia 22161.



U.S. Department of Transportation
Federal Aviation Administration

88 02 051

**BLANK PAGES
IN THIS
DOCUMENT
WERE NOT
FILMED**

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

1. Report No. DOT/FAA/PM-87/32 DOT/FAA/PP-88/2		2. Government Accession No. AD-A195284		3. Recipient's Catalog No.	
4. Title and Subtitle Four Urban Heliport Case Studies				5. Report Date March 1988	
				6. Performing Organization Code	
7. Author (s) Deborah Peisen, Jack Thompson				8. Performing Organization Report No. 5542-6A3	
9. Performing Organization Name and Address Systems Control Technology, Inc. 1611 North Kent Street, Suite 910 Arlington, Virginia 22209				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No. DTFA01-87-C-00014	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration 800 Independence Avenue, S.W. Washington, D.C. 20591				13. Type Report and Period Covered Final Report	
				14. Sponsoring Agency Code APS - 450, APP - 400	
15. Supplementary Notes APS-450, Rotorcraft Program Office, Program Engineering Service APP-400, National Planning Division, Office of Airport Planning and Programing					
16. Abstract → State and city governments generally realize that continued vitality depends on a steady expansion of industry and services as a function of planned growth. The helicopter is a proven catalyst for enhancement of those desired growth patterns. However, without the necessary support infrastructure, this positive contribution of the helicopter cannot be realized. Determining the need for such a support system can be achieved through an understanding of local helicopter activities and the metropolitan or state-wide socio-economic dynamics in which they occur. This allows for data base development, including a fleet inventory, and analysis to provide a foundation for determining current, and forecasting future, helicopter activity and support facility requirements. The purpose of this study is to develop case histories for public-use heliports built in the Central Business District (CBD) of several major metropolitan areas. Within each case history, "common denominators" are identified that are useful for planners in assessing the viability of heliport proposals in cities that exhibit similar demographic characteristics. Each case study provides a general background as a setting and an inventory of pertinent heliport data; including location, cost (when available), history, funding and revenue sources, operational characteristics, etc.; addresses social concerns such as the local industrial base, neighboring land uses and zoning; and the public and governmental attitudes toward the heliport. ← The study contains histories of four heliports, specifically: the Bank-Whitmore Heliport (aka Nashua Street Heliport) in Boston, MA; the Downtown Heliport in Indianapolis, IN; the Downtown Heliport in New Orleans, LA; and the Western and Southern Heliport in Cincinnati, OH. This is the second document in a series of three intended to encourage and assist planners in heliport system plan development. The other documents are: Analyses of Heliport Systems Plans, DOT/FAA/PM-87/31, DOT/FAA/PP-88/1 Heliport System Planning Guidelines, DOT/FAA/PM-87/33, DOT/FAA/PP-88/3					
17. Key Words Bank-Whitmore Heliport Heliport Case Studies Nashua Street Heliport Urban Heliports Indianapolis Downtown Heliport Prototype Western and Southern Heliport			18. Distribution Statement This document is available to the U.S. public through the National Technical Information Service, Springfield, Virginia 22161.		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 58	
				22. Price	

TABLE OF CONTENTS

	<u>Page</u>
1.0 Introduction.....	1
1.1 Background.....	1
1.2 Objectives.....	2
2.0 Boston - Nashua Street Heliport (Bank-Whitmore Heliport).....	5
2.1 Background.....	5
2.2 Heliport Data.....	5
2.2.1 Location.....	5
2.2.2 Classification.....	5
2.2.3 Costs.....	5
2.2.4 Size.....	5
2.2.5 History.....	7
2.2.6 Owner/Operator.....	7
2.2.7 Revenue Sources.....	7
2.2.8 Facilities.....	7
2.2.9 Use.....	7
2.2.10 Market/Service Area.....	9
2.2.11 Operational Characteristics.....	9
2.2.12 User Attitudes.....	10
2.2.13 Access - Airside.....	10
2.2.14 Access - Landside.....	10
2.2.15 Activity.....	10
2.2.16 Types of Helicopters.....	11
2.3 Social Concerns.....	11
2.3.1 Industrial Base.....	11
2.3.2 Neighboring Land Uses/Zoning.....	11
2.3.3 Public Attitudes.....	11
2.3.4 Governmental Attitudes - All Levels.....	11
2.4 Expected Future of Heliport.....	12
2.5 Conclusions.....	13
3.0 Indianapolis Downtown Heliport.....	15
3.1 Background.....	15
3.2 Heliport Data.....	15
3.2.1 Location.....	15
3.2.2 Classification.....	15
3.2.3 Costs.....	15
3.2.4 Size.....	15
3.2.5 History.....	15
3.2.6 Owner/Operator.....	18
3.2.7 Revenue Sources.....	18
3.2.8 Facilities.....	18
3.2.9 Use.....	19
3.2.10 Market/Service Area.....	19
3.2.11 Operational Characteristics.....	20
3.2.12 User Attitudes.....	20
3.2.13 Access - Airside.....	20
3.2.14 Access - Landside.....	20
3.2.15 Activity.....	20
3.2.16 Types of Helicopters.....	22



on For

4&I ☒

ced ☐

tion ☐

tion/

ality Codes

Avail and/or
Special

Dist

A-1

3.3	Social Concerns.....	22
3.3.1	Industrial Base.....	22
3.3.2	Neighboring Land Uses/Zoning.....	22
3.3.3	Public Attitudes.....	22
3.3.4	Governmental Attitudes - All Levels.....	22
3.4	Expected Future of Heliport.....	23
3.5	Conclusions.....	24
4.0	New Orleans Downtown Heliport.....	25
4.1	Background.....	25
4.2	Heliport Data.....	25
4.2.1	Location.....	25
4.2.2	Classification.....	25
4.2.3	Costs.....	25
4.2.4	Size.....	25
4.2.5	History.....	27
4.2.6	Owner/Operator.....	30
4.2.7	Revenue Sources.....	30
4.2.8	Facilities.....	30
4.2.9	Use.....	31
4.2.10	Market/Service Area.....	31
4.2.11	Operational Characteristics.....	31
4.2.12	User Attitudes.....	31
4.2.13	Access - Airside.....	32
4.2.14	Access - Landside.....	32
4.2.15	Activity.....	33
4.2.16	Types of Helicopters.....	33
4.3	Social Concerns.....	33
4.3.1	Industrial Base.....	33
4.3.2	Neighboring Land Uses/Zoning.....	33
4.3.3	Public Attitudes.....	33
4.3.4	Governmental Attitudes - All Levels.....	34
4.4	Expected Future of Heliport.....	34
4.5	Conclusions.....	34
5.0	Cincinnati - Western & Souther Heliport (Mays Landing).....	35
5.1	Background.....	35
5.2	Heliport Data.....	36
5.2.1	Location.....	36
5.2.2	Classification.....	36
5.2.3	Costs.....	36
5.2.4	Size.....	36
5.2.5	History.....	37
5.2.6	Owner/Operator.....	38
5.2.7	Revenue Sources.....	39
5.2.8	Facilities.....	39
5.2.9	Use.....	39
5.2.10	Market/Service Area.....	40
5.2.11	Operational Characteristics.....	40
5.2.12	User Attitudes.....	40
5.2.13	Access - Airside.....	41

5.2.14	Access - Landside.....	41
5.2.15	Activity.....	41
5.2.16	Types of Helicopters.....	41
5.3	Social Concerns.....	42
5.3.1	Industrial Base.....	42
5.3.2	Neighboring Land Uses/Zoning.....	42
5.3.3	Public Attitudes.....	43
5.3.4	Governmental Attitudes - All Levels.....	43
5.4	Expected Future of Heliport.....	44
5.5	Conclusions.....	44
6.0	Conclusions.....	45
6.1	Key Elements.....	47
6.1.1	Location.....	47
6.1.2	Demand.....	47
6.1.3	Local Government Attitudes.....	48
6.1.4	Public Attitude	48
6.1.5	Financial Backing.....	48
6.1.6	Integral Planning.....	49
6.2	Facilities.....	50
6.3	Conclusion.....	50

LIST OF FIGURES

	<u>Page</u>
Figure 1 Public & Private Heliports in Boston (Suffolk County), Massachusetts.....	6
Figure 2 Nashua Street Heliport Layout Plan.....	8
Figure 3 Indianapolis Downtown Heliport Location Map.....	16
Figure 4 Indianapolis Downtown Heliport Layout Plan.....	21
Figure 5 New Orleans Downtown Heliport Map.....	26
Figure 6 Western & Southern Heliport.....	35
Figure 7 Site Plan - W & S Heliport.....	37
Figure 8 Downtown Cincinnati Showing W & S Heliport.....	42

LIST OF TABLES

	<u>Page</u>
Table 1 Essential Elements.....	45
Table 2 Heliport Case Studies Comparative Table of Heliport Characteristics.....	46

1.0

INTRODUCTION

1.1 BACKGROUND

Since 1970 the use of the helicopter in urban areas has increased dramatically. In response, there has been growing demand for public use heliports to accommodate this activity. Over the last two and a half decades some public use heliports have developed in urban areas. A few have evolved from places that were once just cleared spots on parking lots or rooftops. Originally, these heliports were often intended for a specific private use, such as a particular government agency, but so many requests came from other helicopter operators asking permission to use the heliport that they were opened to the public. Other heliports were built specifically for public use, either by a public agency or private individual. These were generally larger facilities offering more services to their users.

The FAA recognized this increasing demand for helicopter landing facilities and called for the development of 25 urban area heliports by the year 2000 in its Rotorcraft Master Plan first published in February 1983. To reinforce this goal, grants were made available for heliport development through the Airport Improvement Program (AIP).

In 1983 the FAA announced the National Prototype Demonstration Heliport Program to build four full service heliports in major urban areas to promote the integration of helicopter use into the urban transportation infrastructure. The four cities chosen for the demonstration heliports were Indianapolis, New Orleans, New York, and Los Angeles. Three of these heliports, Indianapolis, New Orleans and New York, have been completed and are in operation.

In analyzing the factors that contribute to the success or failure of public use heliports, some failures must be studied. This is not to say that public use heliports fail, on the contrary, public heliports have been a valuable asset to urban transportation in many cities since the 1950's. New York City has had four active public use heliports operating for many years. The New York prototype, the New York Downtown Heliport (Wall Street) was officially opened in January 1988 and is expected to have 35,000 operations this year and increased activity in the future as new services and facilities are added. Houston opened a new public use heliport at the Houston Convention Center in August of 1986. Within a little over a year and a half they have experienced a 22% increase in operations, and a 35% increase in passengers. Garland, Texas, unable to develop a general aviation airport due to public opposition, decided to build a public use heliport. There was no public opposition to the heliport; it is scheduled to open in October 1988. Philadelphia has had a successful public use heliport and is in the process of building another. Toledo, Ohio has a downtown public use heliport, built by private funds then deeded to the city, that has been in operation for approximately 6 years. Portland, Oregon, and Miami, Florida have recently opened public use heliports. Over 50 cities, states and regional governments have been interested enough in the possibility of incorporating public use heliports in their urban transportation networks to do heliport master plans and system studies.

More heliports are being developed as a result of these studies. All in all, public use heliports are becoming an increasingly important part of urban transportation.

There have been varying degrees of success for all the public use heliports in this study. For example, in terms of the number of users and amount of activity attracted to the heliport, the Indianapolis Downtown Heliport has been a success but New Orleans Downtown Heliport has not. The heliports developed by cities, states, or private individuals have also had a variety of fates. Some are successful while others may not be. A few may have been doing very well but were closed due to the political situation or public perceptions. The purpose of this study is to determine which factors contribute to the success or failure of heliports by examining the case histories of four existing urban area public use heliports.

The ultimate goal of this analysis is to enhance the effectiveness and accuracy of long range heliport planning and development through an increased understanding of the success/failure dynamics of existing heliports. This will result in more efficient and practical heliport development and consequently in a wiser allocation of government assistance at all levels. Furthermore, a greater number of viable heliports will allow for long term analysis of the ramifications of the integration of helicopter transportation in urban areas, as well as the benefits to the community.

The heliports to be used in this investigation are, the Bank Whitmore Heliport, commonly known as the Nashua Street Heliport, in Boston, Massachusetts, the Indianapolis Downtown Heliport, Indianapolis, Indiana, the New Orleans Downtown Heliport, in New Orleans, Louisiana, and the Western & Southern Heliport (Mays Landing), in Cincinnati, Ohio. These four were chosen because they provide a wide range of location, size, facilities, activity, funding sources, overall success, and possible futures. Three are ground level heliports, one a rooftop. Two were funded and developed through the FAA's National Prototype Demonstration Heliport Program, one was built by a private developer as a public use heliport, and one was originally built by a state agency for use by the city's Department of Public Works.

This is the second in a series of three reports that are being developed to enhance the accuracy, reliability, and usefulness of heliport planning. The first is "Analyses of Heliport System Plans", (DOT/FAA/PM-87/31), (DOT/FAA/PP-88/1). The third and last report in this series, "Heliport System Planning Guidelines" (DOT/FAA/PM-87/33), (DOT/FAA/PP-88/3).

1.2 OBJECTIVES

The objective of this task is to develop case histories of four urban area heliports to determine those factors that contribute to the growth or demise of the facility. Common denominators of influence will be outlined for use in assessing the viability of existing and/or future heliports. This analysis will consider helicopter activity, services provided, types of owners and operators, current funding processes, neighboring land uses, and positive and negative economic variables. Public attitudes of both officials and citizens will also be assessed.

The tasks required to achieve the objectives are delineated below:

Data Collection. Data elements including the history, activity, services provided, type of owners and operators, current funding sources, neighboring land uses, and positive and negative economic variables, were collected from interviews with planning agencies, aviation directors, operators and users of the heliport.

Comparative Table. From the information gathered in the previous task, a comparative table was developed. This table enumerates the pertinent characteristics of the four heliports and were used to identify any common denominators considered influential to the current status and the future of the existing heliports.

Analyses. Analyses were made of those contributing factors considered relevant to the success or failure of these four heliports. The significance of the factors regarding their use for the evaluation of potential urban area public use heliports was then developed.

2.0 BOSTON - NASHUA STREET HELIPORT (Bank Whitmore Heliport)

2.1 BACKGROUND

Boston, Massachusetts has three public use heliports. Two are within the city itself, the third is located at Logan International Airport, which is adjacent to the city center. Figure 1 shows the location of the public and private heliports in Boston.

A study was sponsored by the Boston Redevelopment Authority (BRA) to evaluate the relative costs and benefits of a public system of helicopter landing facilities. The study was temporarily suspended by the city in August 1987 when nearly completed. However, the study was picked up again in early 1988 and a public meeting, the final requirement of the study, is to be held in the spring of 1988. Additionally, the State of Massachusetts has recently started a heliport system plan to evaluate helicopter facilities and heliport demand in the state.

2.2. HELIPORT DATA

2.2.1 Location

The Bank-Whitmore Heliport, commonly called the Nashua Street Heliport, is a ground level facility located on Nashua Street in downtown Boston. It is close to hospitals, financial centers, business headquarter offices, and city government offices, and state government offices.

2.2.2 Classification

The Nashua Street Heliport is a publicly owned, publicly operated, "limited commercial heliport". This means that helicopter operators wishing to use the facility must obtain permission from the Massachusetts Aeronautics Commission (MAC) prior to the first time they use the heliport. The only requirement is that the pilot be properly qualified. This means that the pilot must have 1,000 hours of helicopter time, hold an insurance certificate, and sign a statement holding the MAC harmless in case of accident. A commercial rating is not necessary as a private pilot with high helicopter time is allowed to use the heliport. Night landings require that the pilot be checked out by one of the MAC's inspectors. An added benefit to the prior permission rule is that there is a record of the operators using the heliport.

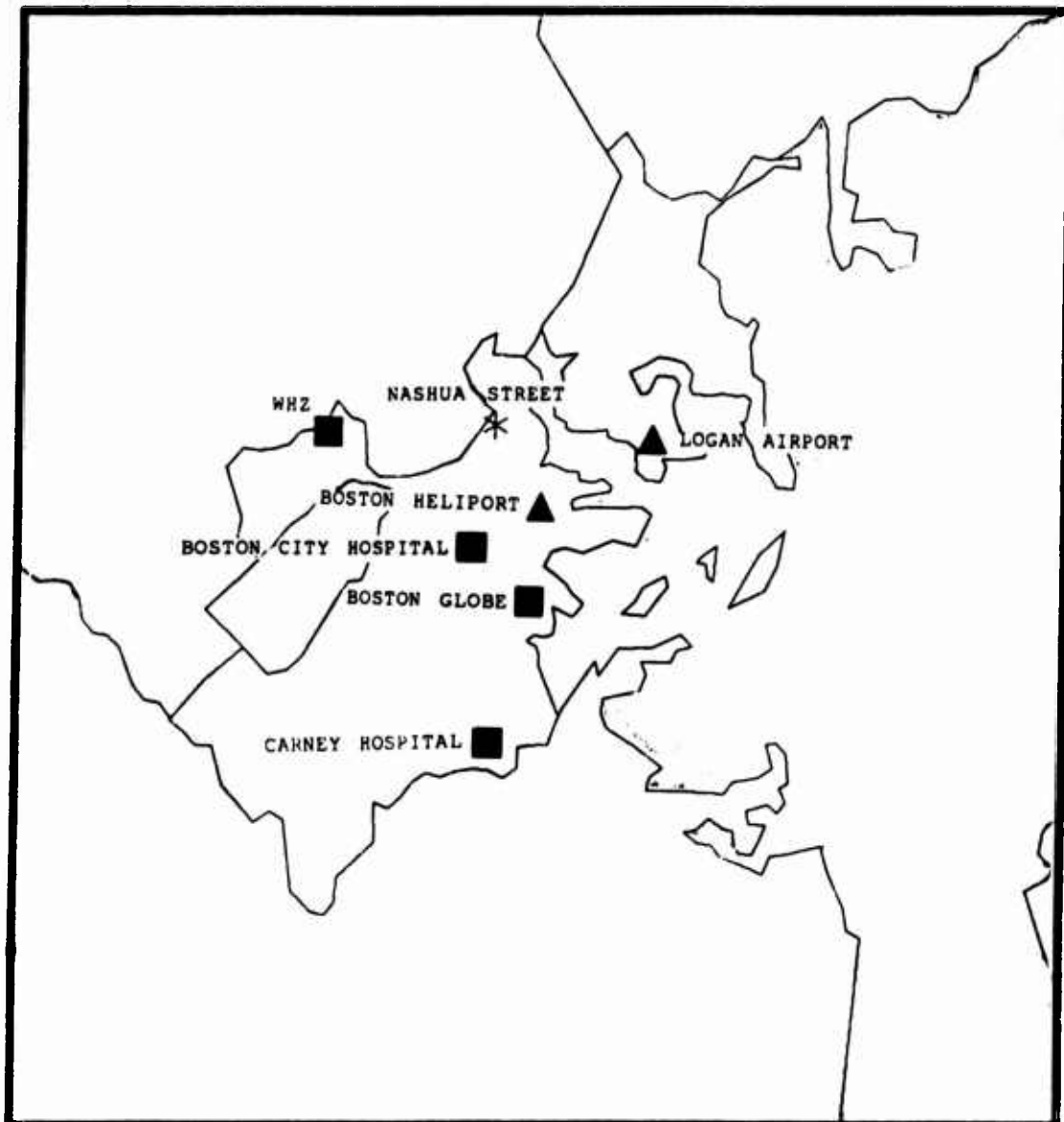
2.2.3 Cost

Since the heliport was originally just a section of a parking lot to which a fence, heliport markings, and a bus shelter were added over a number years, no information was available on the cost of the Nashua Street Heliport.

2.2.4 Size

The heliport is 16,000 square feet. This includes one touchdown pad

***PUBLIC & PRIVATE HELIPORTS
IN BOSTON (SUFFOLK COUNTY), MASSACHUSETTS***



LEGEND

SQUARE: PRIVATE HELIPORT

TRIANGLE: PUBLIC HELIPORT

STAR: LIMITED COMMERCIAL USE

Figure 1 Public & Private Heliports in Boston (Suffolk County), Massachusetts.

and one or two parking spaces depending on the size of the helicopters. It can accommodate one large or two medium size helicopters. It is surrounded on three sides by a parking lot and on the fourth by the Charles River. Consequently, there is little room for expansion. The layout plan for the heliport is shown in Figure 2.

2.2.5 History

Since the early 1960's the land had been used as a heliport because a section of the existing parking lot had been roped off as a helicopter landing area. In 1964, the Massachusetts Aeronautical Commission (MAC) built the Nashua Street Heliport for the Department of Public Works (DPW) and it opened as a private heliport. Because of the many requests by corporations to use the heliport it was opened for limited commercial use in 1965. The land that it occupies is leased from the Department of Public Works (DPW) for 99 years.

2.2.6 Owner/Operator

It is owned by the city of Boston and operated by the MAC, an agency which is part of the state government.

2.2.7 Revenue Sources

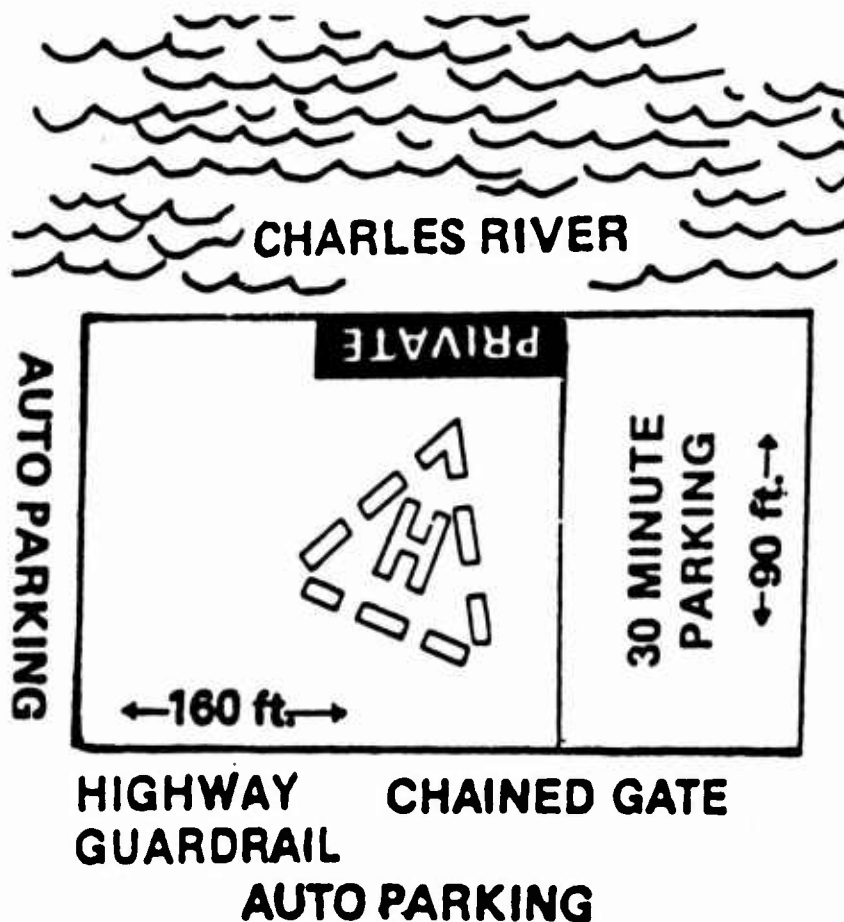
The heliport was funded by bonds issued through the MAC. There are no landing or parking fees.

2.2.8 Facilities

There are few amenities. A bus shelter was installed in 1986 to keep the rain and snow off passengers. There is also on-site radio communication directly to the MAC, low level flood lights and amber perimeter lights (both radio controlled) for night operation, and security fencing.

2.2.9 Use

Originally the heliport was intended only for government use. The heliport is now used for corporate/executive, military, electronic news gathering (ENG), and government operations. It is also important for air ambulance helicopter operations. Since the heliport is not attended, data concerning the exact division of uses are not available. However, it is estimated that 50% of the operations are corporate/executive, which includes business, corporate, and commercial charter. A representative list of users showing the cross section of operation types is provided below:



Phone: (617) 973-7053

For lights key 5 times on 123.05

UNICOM: 123.05

Notes: Initial use by prior MAC permission ONLY

Figure 2 Nashua Street Heliport Layout Plan
Source: Edwards & Kelcey

Digital Equipment Corporation	Boston MedFlight
General Electric	New England Life Flight
Tenneco	Wiggins Airways
Textron Aircraft	Copters Unlimited
Union Carbide	Island Helicopter
RCA	Executive Air Fleet
Mass Mutual Life Insurance	Business Helicopters
Dow Jones	Air Pegasus
IBM	U.S. Army
Warner-Lambert	U.S. Marine Corps
Pfizer	Massachusetts National Guard
American Express	New York National Guard

The heliport is located a few blocks from Massachusetts General Hospital. Although Massachusetts General has been looking for a location nearer the hospital to build its own heliport, Nashua Street is the closest heliport available now.

Two operators are considering beginning scheduled service operations for the Boston area. Since January 1987 only one, Hub Express, has made any progress in implementing service. Hub Express started operation in March 1987, as an on-demand charter operation. Hub's scheduled service operation is imminent. It has been certified as a scheduled commuter and has established inter-line agreements with several major airlines. Hub is currently offering a one-way fare of \$20.00 through this agreement. One major advantage of Hub's service is that it has made arrangements to share the airline gate at Boston Logan International Airport that Digital Equipment Corporation's "in-house" helicopter service uses. This essentially gives Hub its own gate so that its passengers can make direct connections to the major airlines. Hub plans 22 operations per day to Boston Logan and 4 per day to the Nashua Street Heliport.

The other operator, Boston Airlines, applied to the state for permission to operate scheduled service between Hanscom Field in Bedford, Massachusetts, Nashua Street Heliport, and Logan Airport. The proposal included starting service with a minimal number of round trips and increasing the number of operations as demand warranted. However, there has been no progress since the original proposal was made.

2.2.10 Market/Service Area

Based on the list of users recorded by the MAC, it is estimated that the service, or market area, of the Nashua Street Heliport is within a radius of between 125 and 200 miles. However, the list also shows that helicopter operators from New York, New Jersey and Pennsylvania regularly use the heliport. New York City to Boston (approximately 175 miles) is a common city pair for this heliport.

2.2.11 Operational Characteristics

The heliport is open 24 hours a day, 365 days a year. It is most active during the day. The activity is consistent with no particular

peak hours. There are no significant seasonal variations, although June may be slightly more active (estimated at 12.1% of annual activity). It is also estimated that 59% of all reported helicopter operations flying into Boston go to the Nashua Street Heliport.

Of the operators responding to the survey for the Boston Heliport Study, 31% indicated that they had helicopters equipped for IFR operation. However, the Nashua Street Heliport is designated for VFR use only.

There is no formal written agreement with the local air traffic control regulating its use, but the heliport is within the Boston Terminal Control Area and pilots using the facility must conform to all rules concerning operation within a TCA.

The estimated average number of passengers per operation is 1.2. There are no based aircraft.

2.2.12 User Attitudes

Overall the users have a favorable opinion of the heliport. However, they would like to have fuel available and an enlarged area for long-term parking. Some concern was expressed about "limited safe approach and departure paths". However, due to the size and location of the heliport these suggested improvements are not feasible.

2.2.13 Access - Airside

The approach/departure path to the heliport is over the Charles River. This was determined by several factors:

- the proximity of many tall buildings make this the only way to get into the heliport,
- the river affords effective noise mitigation, and
- provides clear space to maintain ATC altitude restrictions.

2.2.14 Access - Landside

Ground access is limited by traffic congestion during the rush hours, which was aggravated when Nashua Street was relocated. This is a particular problem for the medical transfers to Massachusetts General, and one of the reasons the hospital is building its own helipad.

The primary ground transportation available is personal automobile and taxi. However, the heliport is within a 10 or 15 minute walk of downtown Boston.

2.2.15 Activity

Present activity at the heliport is approximately 10,000 operations per year, representing about 833 operations per month and a little less than 28 operations per day.

The use of the heliport has steadily increased since it was built, but no definite statistics have been kept.

2.2.16 Type of Helicopters

The most common type of helicopter to use the facility is the single engine, turbine Bell 206, Jet Ranger. However, the heliport is used frequently by twin engine, turbine Sikorsky S-76's and Bell 222's.

2.3 SOCIAL CONCERNS

2.3.1 Industrial Base

There is a high concentration of helicopter activity in the Boston metropolitan area. Many of the industries that are responsible for the recent economic prosperity of Boston and this part of New England use helicopters for corporate transportation. Many of these helicopter users are high technology firms.

The industrial base for the Nashua Street Heliport incorporates a cross section of big city downtown industries including, banking, insurance, publishing, energy companies, hospitals, construction, and high technology firms. Many of these industries either own their helicopters or lease them from a local operator.

One prime example of helicopter use by high technology firms is the "in-house" air transportation system developed, and fully utilized, by Digital Equipment Corporation. The Digital system includes seven helicopters that are used to transport employees between Digital's various office and plant locations in New England, and directly to Logan International Airport, where the Digital helicopters have been assigned a gate at the terminal building. Any employee may use this service as needed, not just high level executives.

2.3.2 Neighboring Land Uses/Zoning

Beyond the immediate area of the heliport there are industrial uses and office buildings. The heliport is located in an "I-2", industrial zone.

2.3.3 Public Attitudes

The public has never been directly involved or concerned with the heliport. The majority does not know that it exists because of its location and because the approach is over the river. There have been no public complaints about the the Nashua Street Heliport.

2.3.4 Governmental Attitudes - All Levels

The state government through the MAC has been very supportive of the Nashua Street Heliport. However, there is pressure by the city through the Metropolitan District Commission (MDC) to eliminate Nashua Street to reclaim the land for the Charles River Esplanade.

2.4 EXPECTED FUTURE OF HELIPORT

Heliport demand indicates that it is feasible to build a full service heliport in Boston. However, the lack of room for expansion at the Nashua Street location and the FAA's determination that it is only suitable for VFR conditions means that a full service facility would have to be sited elsewhere. Current evaluation indicates that the best site for a full service facility is at the present location of the "Boston Heliport", a privately owned, public use heliport that has been in operation for a little over a year. However, operational characteristics and demand indicates a need for more than one public landing area within the city.

The Nashua Street Heliport is currently very valuable in the transportation infrastructure, and, if it were to remain operational, its use may increase with a full service heliport at a nearby location. Initial factors indicate that a full service facility would increase total helicopter operations in the city substantially. The Nashua Street Heliport is the only public use facility in the northern part of the Central Business District. Additionally, the possible alternative sites for Nashua Street have not been found satisfactory for a variety of reasons including location, airspace, and public acceptance.

Regardless of the success of the Nashua Street Heliport and the support of the MAC, Boston is trying to eliminate Nashua Street and to delay development of the Boston City Heliport. The Municipal District Commission wants to use the heliport land for the Charles River Esplanade. At the present time the MAC feels that the fact that Massachusetts General Hospital needs Nashua Street for air ambulance helicopter operations is the only reason the heliport is still in operation. Massachusetts General has not been able to find an alternate location for its own heliport, if they do, the MAC feels the heliport will be closed. All indications point to the heliport remaining open for no more than five years.

In August 1987, the City cancelled a public meeting on the development of the Boston Heliport and temporarily suspended the nearly completed Boston Heliport Study. The designated site for a public use heliport was to be South Boston. South Boston was also under consideration for the third harbor tunnel, and a new commercial development, the Fan Pier Project, as well as two other high rise developments, Pier Four and a development at the World Trade Center. These developments are to include high-rise office buildings, hotels, condominiums, a canal, and a marina, and may include the construction of a new bridge across the Charles River. As proposed, this construction may impact current instrument approach procedures and remains under study. The City suspended the heliport study because it felt that due to the number of proposed projects in the South Boston area the political acceptance of a heliport at that time would be too much. At the beginning of 1988 Boston decided to finish the study and a public meeting is to be scheduled for early spring.

Therefore, even though the MAC is very supportive and wants to retain the heliport at its present location, the future of the Nashua Street Heliport is in doubt. Although there is industry and governmental support, the support is not organized well enough to save the heliport. However, the MAC intends to fight to keep the heliport open.

Massachusetts, who was co-sponsor on the Boston Heliport Study, has begun its own state heliport system plan. It is expected that the information collected and the analyses developed in the Boston Heliport Study, will be incorporated into the state report.

2.5 CONCLUSIONS

The Nashua Street Heliport is publicly owned and operated. It has been in existence for over 20 years. There are no services. Its only amenity is a bus shelter for passengers. It is a very small facility compared to other urban area public use heliports. Yet, its annual operations rival that of the most successful full service prototype heliports (as shown in subsequent sections of this report). Its users include a cross section of urban industries including some of the most prosperous in the Boston Metropolitan area. There are no public complaints about its operation. However, the Nashua Street Heliport is very likely to be closed within five years. Its success is due to its location, the existing demand, and the interest and support at the state level of government through the MAC. It is proof that size and elaborate facilities are not always necessary for the success of an urban heliport.

Its potential closing appears to be due to of lack of support at the city level. The local government has not recognized the connection between the heliport's economic value to the users and the economic benefits these users are to the community. Perhaps even the corporations that use the heliport have not made this determination in concrete terms. Yet one business alone, Massachusetts General Hospital, has been able to forestall its demise. However, except for the hospital, the state and the local helicopter pilot's organization, are its only backers.

The uncertain future of the Nashua Street Heliport is an indication that local political is a key factor even if other elements such as location and demand are in place.

3.0

INDIANAPOLIS DOWNTOWN HELIPORT

3.1 BACKGROUND

The Indianapolis Downtown Heliport was the first of the four Federal Aviation Administration's (FAA) National Prototype Demonstration Heliports to open. One of the main reasons it was chosen to be a prototype heliport was because of the broad based support it had throughout the city and state governments as well as with the Chamber of Commerce and business community.

No heliport system or master plan studies were done before, or since its development.

3.2 HELIPORT DATA

3.2.1 Location

The Indianapolis Downtown Heliport is located near U.S. Route 40, in downtown Indianapolis, Indiana. It is a ground level heliport, but the operational area is technically one level above the street. It is within six blocks of the City-County Building, the Convention Center and Hoosier Dome, one and one half blocks from the State Capital, and two to three blocks from the center of the downtown area. A location map of the Indianapolis heliport is shown in Figure 3.

3.2.2 Classification

It is a publicly owned, privately operated, public use heliport.

3.2.3 Cost

The entire facility cost approximately \$6,000,000. Federal (FAA) grants, funded 90% of this cost, the rest was funded by a combination of local government funds, and private investment. The state provided \$125,000 for land acquisition.

3.2.4 Size

It is situated on 5.5 acres of land with one 60-foot diameter touchdown pad and a parking apron with painted parking positions for 7 helicopters, although up to 20 helicopters can be parked. It has a 6,000 square foot maintenance hangar and a 6,000 square foot storage hangar. It is designed with a three story central tower located between the two hangar bays for service and office space.

3.2.5 History

As early as November 1954, the Indianapolis Planning Commission recommended development of a public heliport for the Central Business District. In November 1968, six municipal agencies including the Health and Hospital Corporation and the Indianapolis Airport Authority (IAA) formed the Helicopter Operation Committee to operate helicopter(s).

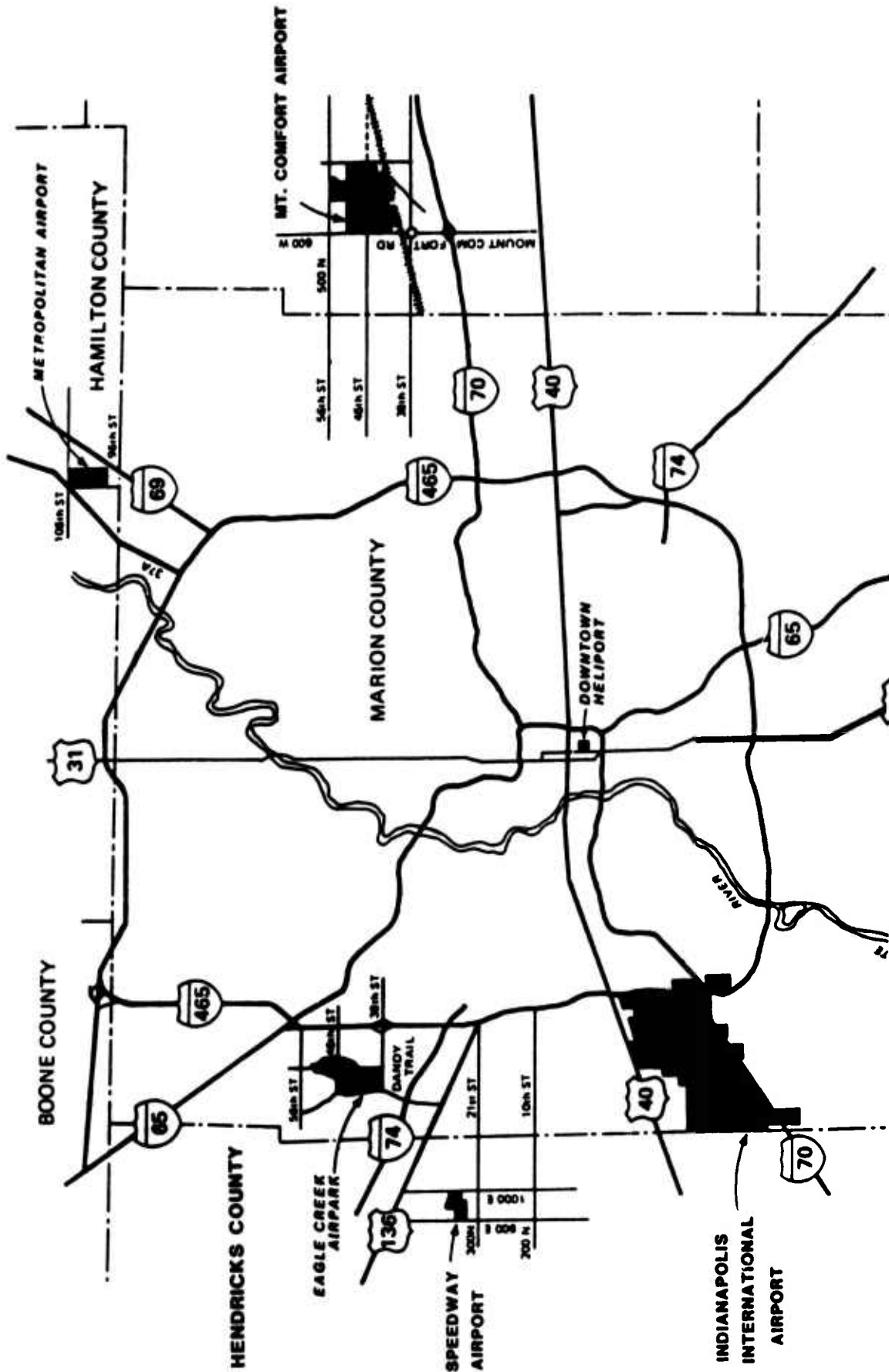


Figure 3 Indianapolis Downtown Heliport Location Map
Source: Indianapolis Airport Authority.

In 1969 the Indianapolis Airport Authority (IAA) leased a 2.3 acre parcel of land from CONRAIL for \$1.00 per year to be used as a private heliport for government helicopters. The leased land was part of the old Bee Line Railroad yard and the heliport was called the Bee Line Heliport.

By 1974 there were so many requests by private companies to use the heliport that an inquiry was made into converting the heliport into a public use facility at that time. However, because of existing leases and liabilities, the change was not possible at that time.

The heliport was changed to public use between 1978 and 1979 when the IAA requested that the FAA change the heliport's status from a private facility to "open-to-the-public". In December 1979, the IAA purchased the heliport and renamed it the Indianapolis Downtown Heliport.

As early as March, 1981, plans for further improvements were being made. The heliport was in an industrial part of town and there were "winos and weeds" around the facility. Since it was to be used by the public, clean up and improvements were necessary. Approval was sought and received from the FAA for further development and for airspace utilization. The FAA also made a strong recommendation to incorporate height zoning limitations around the site to protect the approach/departure paths. This was a key to future successes. In August 1981, the Department of Metropolitan Development (DMD) amended the existing Airspace District Zoning Ordinance of Marion County to include Heliport Height Zoning. At this time, it is the only height limiting zoning ordinance in the country for a heliport.

In December 1982, the FAA approved the Heliport Layout Plan for further development and for financial assistance under the Airport Improvement Program (AIP). A grant worth 90% of the required funding was thereby insured.

In 1983, the FAA announced the National Prototype Demonstration Heliports Program, and an application was submitted. During 1983, the Indiana Department of Transportation (DOT) included the heliport in the Indianapolis Metropolitan Airport System Plan as a reliever heliport. Its Federal designation was changed accordingly to "reliever heliport" in the National Plan of Integrated Airport Systems (NPIAS), a necessary requirement for consideration in the national prototype program. The heliport was chosen as one of the four national prototypes. As a result, the heliport received four Federal grants during the course of its development. The environmental assessment was submitted and a Finding of No Significant Impact (FONSI) was issued.

In June 1984 construction was begun. During this time a private company, the Indianapolis Heliport Corporation, was chosen to be the Fixed Base Operator (FBO) for the heliport and a 20 year lease agreement was signed. On May 9, 1985, the heliport was officially opened.

All during the construction the heliport landing area remained open except during December, 1984, when the new landing pad was being built.

Although re-opened after the landing pad was constructed in December 1984, the terminal building and other amenities were not completed until later the next year. On May 9, 1985, it was formally dedicated as the first FAA National Prototype Heliport.

3.2.6 Owner/Operator

The Indianapolis Downtown Heliport is owned by the Indianapolis Airport Authority (IAA) and is leased back to the Indianapolis Heliport Corporation (IHC) which runs the FBO. The IAA runs four other general aviation airports and is responsible for repairs and maintenance at all its facilities. However, because the area serviced at the heliport is relatively small, the FBO takes care of maintenance for such items as snow removal, cutting grass, etc., and the IAA furnishes the supplies.

3.2.7 Revenue Sources

Funding for the heliport comes from several sources. By provisions in the lease back agreement, the IAA receives ground rental from the FBO and a percentage of all revenues the operator collects goes to IAA. These percentages include 1% of the gross receipts on all maintenance and 10% of the tenant office rental. The IAA also receives 6¢ per gallon of all fuel delivered to the heliport, not just from the fuel that is sold.

There is no landing fee and no parking fee for maintenance or for the restaurant. Fees are charged for long term parking only.

After two years the heliport is still not self-supporting. This is partially due to the need to repay the initial investment. It is expected that within the next year the heliport will be able to finance its own operation and make a profit.

3.2.8 Facilities

The Indianapolis Downtown Heliport is the most complete heliport, operated independently of an airport, in the country.

The main services are located in the central tower building. On the ground floor is a lobby with a reception desk, a rental car agency, a Part 135 helicopter operator, a large conference room, a weather briefing room associated with the Automated Weather Observing/Reporting System (AWOS) located at the heliport, a pilots' rest area, and some telephones. The second floor contains the corporate offices of IHC, and offices for tenant businesses. All the tenant offices have been leased. In most cases these tenant businesses are related to the heliport, offering such services as car or aircraft rental, but this is not a prerequisite and not all the businesses are helicopter related. On the third floor of the tower building is a 50 seat restaurant that is open to the public. One "service" that has been very successful is an arrangement between the restaurant and a helicopter operator located at a nearby airport. They offer a steak dinner for two and a 20 minute helicopter tour of the city for \$80.00. So far over 10,000 people have taken advantage of this offer.

On one side of the tower building there is a 6,000 square foot storage hangar large enough to accommodate a Westland 30 or an Aerospatiale Super Puma. On the other side is a 6,000 square foot maintenance hangar. The heliport is the only major maintenance center between Saint Louis and Pittsburgh. The Indianapolis Downtown Heliport is an authorized repair station for Bell, McDonnell Douglas, and Aerospatiale helicopters as well as for Aviall avionics. Repairs are also available for Agusta, MBB, and Sikorsky helicopters, and for Lycoming and Allison engines. Indianapolis is a manufacturing center for Allison Engines, 95% of all small helicopter engines are built there. The fully equipped maintenance hangar includes an electric hoist large enough for Westland 30's or Super Puma helicopters. Both Jet A and 100 octane low lead fuel are available. Risk of fire is lowered because potentially hazardous fluids are pneumatically dispensed from under the floor.

The heliport is marked and lighted. It has been used by the FAA for testing experimental lighting so it has had three complete sets of lights. The lights are pilot controlled for low, medium and high intensity. There is a beacon in operation between dusk and dawn.

The Indianapolis Downtown Heliport was to have had a Microwave Landing System (MLS) installed in 1988 by the FAA. However, there are obstacles in the vicinity of the approach corridor that have been determined significant intrusions into the IFR airspace requirement. The FAA has a research effort underway to determine if the IFR airspace requirement can be reduced safely. With the completion of this effort, the Indianapolis Downtown Heliport may again be a candidate for an MLS.

3.2.9 Use

There are new operators that use the Indianapolis Downtown Heliport, but the mix of the types of users is the same as it was before the major development. Users include electronic news gathering (ENG), air ambulance helicopter operations, city and state police, and an increasing number of corporate/executive users.

3.2.10 Market/Service Area

The service area is an estimated 300 mile radius from the heliport. This is slightly larger than the average heliport service area of approximately 200 miles because it is the only major maintenance facility in the area. Many of the Midwest's most heavily populated industrial metropolitan areas are within 300 miles including Detroit, Chicago, Milwaukee, St. Louis, and Cleveland. Two different estimates on the number of helicopters within the service area were obtained. One by the IAA, estimated 600 helicopters within the 300 mile radius and the other, by the owner of the FBO, estimated 1,200 within a 275 mile radius. The lower estimate appears to be the most likely.

3.2.11 Operational Characteristics

The heliport is open 24 hours a day, 365 days a year. The peak hours are early morning and late afternoon. The peak month is May when the "Indianapolis 500" race is held.

There is no formal written agreement with the local air traffic control facility. Communication with the local Air Traffic Control Tower at Indianapolis International is not mandatory. However, at 30 feet above the ground, anyone wishing to enter the system at Indianapolis International can do so.

Four helicopters are based at the heliport, including a Robinson R-22, a Bell 206 Jet Ranger, an Aerospatiale AS 355F-1, and a Messerschmitt-Boelkow-Blohm BO 105 used for air ambulance helicopter operations by the Methodist Hospital.

3.2.12 User Attitudes

The user attitudes have been extremely positive, because of location, services, and amenities available at the heliport. In fact, it is believed that one of the reasons that activity is increasing is the good reports passed on by the users.

3.2.13 Access - Airside

There are two approaches, one from due east and one from the southwest. From the southwest the approach/departure path to the heliport is over the railroad tracks. Then, depending on the direction of approach, traffic is designated along either of two interstate highways to final. The approach/departure paths are illustrated in Figure 4. The fact that the operational area is elevated one level above the street helps to mitigate possible noise complaints. The heliport has an approved point in space approach and a "Heliplasi" visual approach guidance system.

3.2.14 Access - Landside

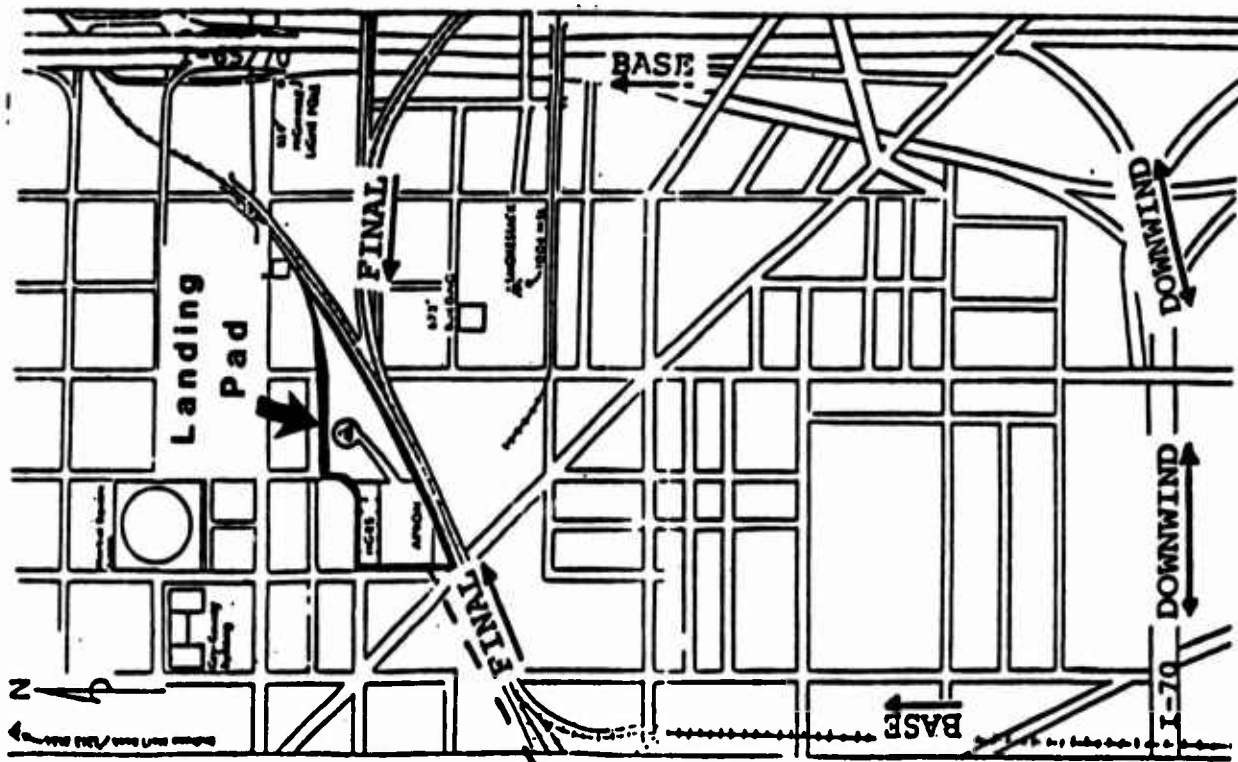
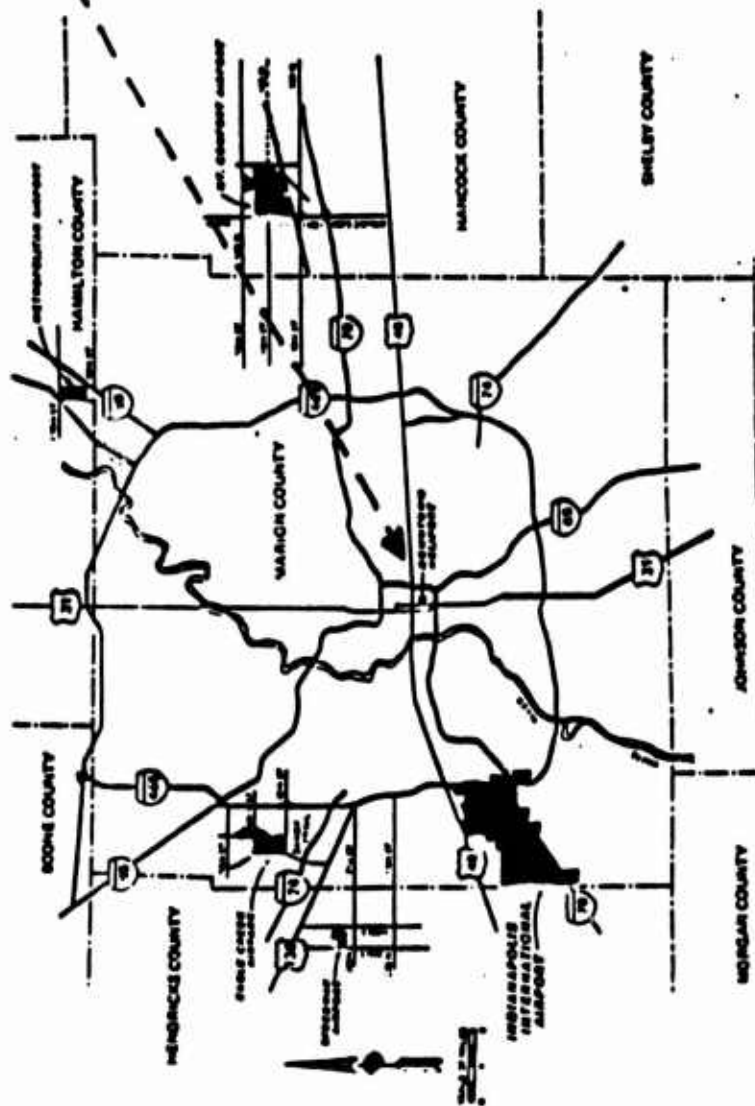
Ground access to the heliport is available from two streets, Washington Street and South New Jersey Street. Washington Street is a two way street and although South New Jersey is a one-way street it is two way into the heliport. The terminal building is located on South New Jersey.

In addition, to automobile parking, there are rental cars, charter aircraft, limousines and taxis are available, as well as courtesy cars to take people downtown if desired.

3.2.15 Activity

It has been estimated that there were 3,000 operations per year at the original heliport. After development of the prototype, heliport operations immediately rose to 10,000 per year and are expected to increase.

Downtown Heliport, Indianapolis, Indiana (IN03)
 Elev. 732' 39°46'N-86°09'W AWOS 124.025 CTAF 122.9
 UNICOM 123.05 Jet-A, 100LL



RECOMMENDED TRAFFIC PATTERN

Figure 4 Indianapolis Downtown Heliport Approach/Departure Routes
 Source: Indianapolis Airport Authority.

3.2.16 Type of Helicopters

The heliport can accommodate almost any type helicopter including the Westland 30 and the Aerospatiale Super Puma.

3.3 SOCIAL CONCERNS

3.3.1 Industrial Base

The industrial base for the Indianapolis Downtown Heliport includes coal mining, energy companies, construction, agriculture, electronic news media, electronics, utilities, military (National Guard) and hospitals.

3.3.2 Neighboring Land Use/Zoning

There is an interesting law in Indianapolis regarding properties owned by the IAA. The IAA is not a branch of the city government but an independent authority, with its own power of zoning, taxation and eminent domain. Therefore the heliport does not have a city zone designation but the land is considered zoned for "airport use" which provides protection for the heliport. The land uses in the immediate area are industrial and commercial.

For private heliports there are no laws in Indianapolis regarding heliport development. Each site is considered on a case by case basis. To build a heliport the sponsor needs a variance or special use permit. However, at this time, Indianapolis has the only height limiting ordinance for heliports in the country. This ordinance controls the construction of objects in the vicinity of the heliport in order to prevent hazards and obstructions to air navigation within the airspace required for operation of the heliport.

3.3.3 Public Attitudes

The Indianapolis Downtown Heliport has had no opposition from the general public. There have been no complaints from the public about the heliport. The public has been aware of its development from the very beginning. The Chamber of Commerce has been quoted as saying that "(the heliport is) symbolic of a city looking to the future..." The city and state officials were committed to building a center-city heliport. In 1985 the Mayor William Hudnut said, "The heliport will not only benefit by the growth of Indianapolis, but, in fact, be a factor in the city's growth." The heliport is used to market the city to white-collar corporations.

3.3.4 Governmental Attitudes - All Levels

The Indianapolis Downtown Heliport received support from all levels of state, county and city government.

3.4 EXPECTED FUTURE OF HELIPORT

The IAA feels that within a 15 to 20 year period, the heliport will be a necessary transportation link for city-center-to-city-center aviation. This view is also held by transportation planners and the FAA. The IAA comments were that while "it is pleased the heliport is generating business, its ultimate goal is that of a vital link in a commercial helicopter-airline network." Major locations suitable to complete this link include:

- Chicago
- Cleveland
- Detroit
- St. Louis

Although the previous heliport was frequently used, the new one is used more because of its amenities, which include, fuel and maintenance. A continued growth potential is present because it is relatively low in the corporate/executive use. Corporate/executive operations are predominant at other successful, frequently used, heliports, and this type of use is increasing at Indianapolis.

Furthermore, the heliport provides a focus for helicopter travel into the city. Its location eliminates the need to land at a specific destination and then continue on to an additional destination at a general aviation airport to refuel.

No heliport system plan of the area, or master plan of the site, was completed before or after the opening of the Indianapolis Downtown Heliport. The IAA said that "it may be helpful to study the site selection 'backwards' to see what happened." However, the IAA felt that it is more than likely a study would only identify that the reasons for the heliport's success are those that were stated by the IAA, and that such a study would only quantify those circumstance.

The Indianapolis Downtown Heliport has been successful, and at the present time it appears that it will continue to be successful. Unlike other frequently used urban heliports, the percentage of corporate/executive use is relatively low. As this type of use continues to increase, the heliport will be even more successful.

There is world wide interest in the Indianapolis Downtown Heliport. A total of 125 copies of a tape produced by the IHC on the heliport has been sold. Eight countries have received copies of the tape. In the summer of 1987, a representative from Japan spent several days studying the development of the heliport.

3.5 CONCLUSIONS

In Indianapolis, all the situations and circumstances were right for development of a full service discrete heliport facility, including:

- location
- existing demand
- political support at all levels, particularly local support
- lack of public opposition
- financial backing

There was an existing public use heliport with plans for improvements in the works. There was political acceptance and support, substantial existing demand, an excellent location, a need for a maintenance facility, and lack of public opposition. In addition, there was local and state level political support.

It is expected that support for the heliport will continue. The heliport has been in operation with the complete facilities for less than three years. All indications are that the customer base will increase, especially if the corporate/executive market develops as is expected. Indianapolis is an excellent example of the potential of helicopter transportation in urban areas.

4.0

NEW ORLEANS DOWNTOWN HELIPORT

4.1 BACKGROUND

The New Orleans Downtown Heliport was the second of the Federal Aviation Administration's National Prototype Heliports to be completed. The Gulf of Mexico once had the highest level of civilian helicopter activity in the United States due to the extensive use of helicopters by the petroleum industry. The New Orleans Downtown Heliport was primarily built as a downtown terminal for the petroleum industry. However, before the heliport was completed the bottom dropped out of the oil and gas industry resulting in a dramatic drop in helicopter activity and poor economic health for the entire area.

The Southeast Louisiana Airport System Plan recommended construction of a downtown New Orleans heliport in the late 1970's. A heliport feasibility study was begun in 1979 and completed before construction of the heliport.

4.2 HELIPORT DATA

4.2.1 Location

The New Orleans Downtown Heliport is located adjacent to the Louisiana Superdome, at the intersection of Girod Street and Julia Street near downtown New Orleans. Figure 5 shows the location of the heliport.

4.2.2 Classification

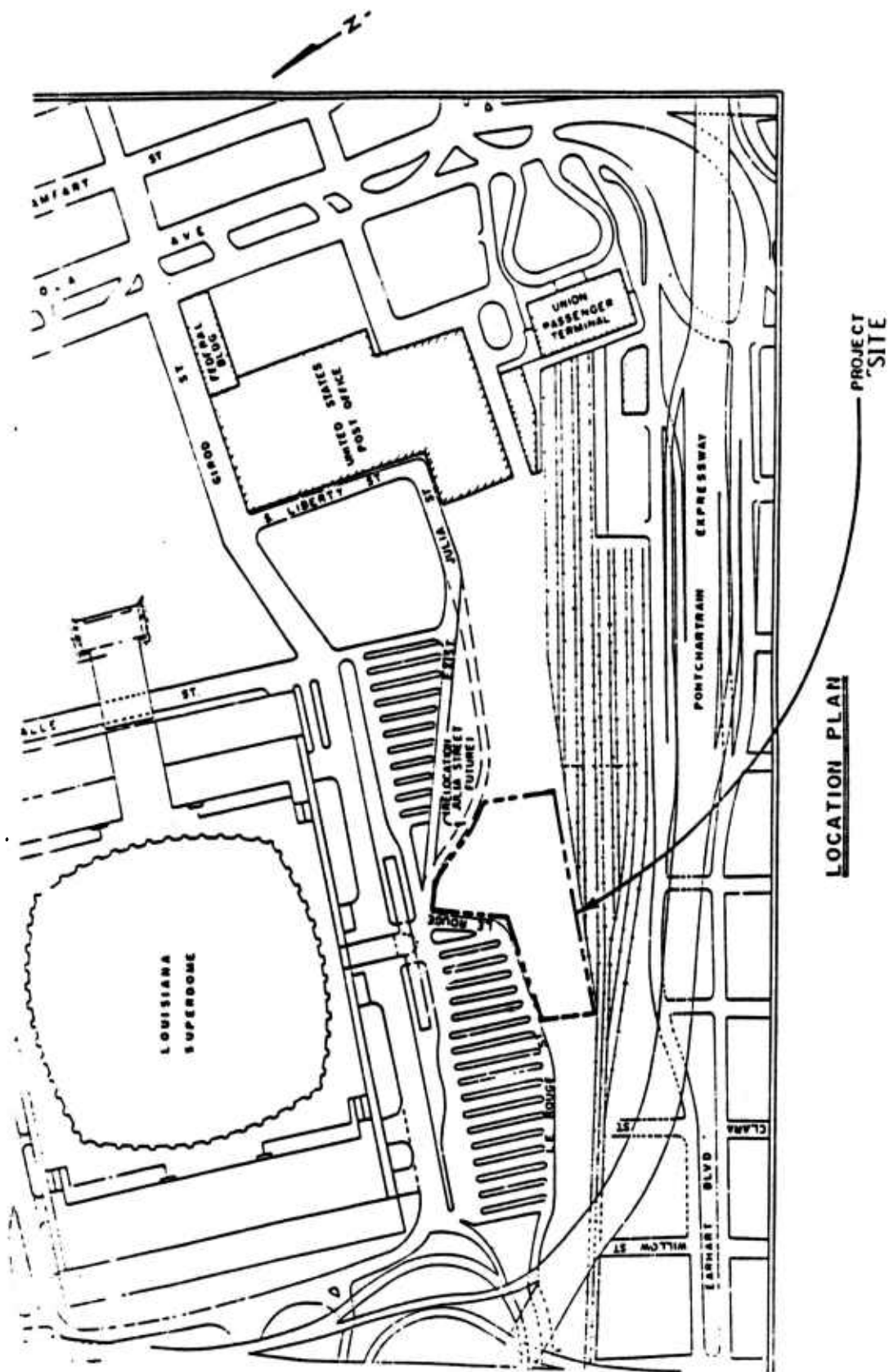
It is a publicly owned, publicly operated, public use heliport.

4.2.3 Cost

The entire cost of the heliport was \$2.2 million. It was funded through a combination of Federal (FAA) grants, and state and local government monies. Federal participation was in the form of two Federal Airport Improvement Program (AIP) grants totalling \$1.4 million. State participation came from the Louisiana Department of Transportation and Development, and local funding from the City of New Orleans, the New Orleans Aviation Board and the Regional Planning Commission (RPC).

4.2.4 Size

The New Orleans Downtown Heliport is a ground level heliport located on a 3.2 acre site with one landing pad and parking spaces for two helicopters. The terminal building is 2,500 square feet. The initial size of the parcel where the heliport is located was 6.2 acres. However, property title disputes and negotiations for use with the various interested parties, as well as the .56 acre needed for the relocation of Julia Street, and the 2.5 acres that was leased to the U.S. Postal Service eventually brought a temporary reduction in size to 3.2 acres. However, the Postal Service land that is now being used for vehicle parking will be available at a future date.



SELECTED LOCATION FOR DOWNTOWN HELIPORT

Figure 5 New Orleans Downtown Heliport Location Map
Source: New Orleans Aviation Board

4.2.5 History

Because of the widespread use of helicopters by the petroleum industry, and the national trend of increasing helicopter use in urban areas since 1970, the Southeast Louisiana Airport System Plan had recommended the construction of a downtown New Orleans heliport. In 1979, the Regional Planning Commission (RPC) received a grant funding a study to determine the feasibility of a downtown heliport. Matching funds were supplied by the Louisiana Department of Transportation and Development, the City of New Orleans, and the New Orleans Aviation Board. The grant was administered by the RPC. Increased interest was created by the announcement of the FAA's prototype heliport program.

The study determined that, "in the early 1980's, the offshore oil and gas industry on the Gulf Coast accounted for the largest commitment of civilian helicopters in the world, with over 600 helicopters at more than 50 bases." Forecasts of future helicopter activity, especially for southern Louisiana were very positive. A survey conducted for the heliport feasibility study, with a 35% response, indicated that there would be 14,600 operations to the heliport from those responding alone. The Southeast Louisiana Airport System Plan, prepared in the late 1970's, had estimated that there would be 18,800 helicopter operations by 1985. Accounting for latent demand, as well as potential operations from those helicopter operators who had not responded to the survey, total demand was estimated to be 30,000 operations per year in 1980 with an increase to anywhere from 46,400 to 104,700 operations annually by 1985. The study recommended that 5.5 acres would be needed for the heliport to accommodate forecasted demand.

Use of the heliport was expected to be divided among corporate/executive (68%), air taxi (23%), public/government (6%) and air ambulance (3%).

The study determined that the best location for the heliport was a site on the Mississippi River. However, this site could not be used because the 1984 Louisiana World Exposition (World's Fair) was to be held at the same location on the river. The alternative was a 6.2 acre site at the Union Passenger Terminal (UPT), a railroad facility, owned by the city, located next to the Louisiana Superdome. The city had planned a "multi-modal" transportation center at this site because of the Amtrak railroad lines and the Greyhound Bus terminal already located there. It was felt that a heliport at this location would be a "key" addition to the transportation center.

Since the city owned the land, it was hoped that the heliport would be completed by the time the World's Fair opened, but the project encountered numerous problems.

When the Union Passenger Terminal was built in the 1940's, bonds had been sold to generate funds for the facility. The land was being used as an automobile parking facility to pay off the bonds. Although the land now belonged to the city, a commitment had been made to continue to use

the land for railroad purposes or it would revert to the state. Although the state was supportive of the heliport, until the title was clear the land could not be used for the heliport. As a result, the state quitclaimed the land to the city in 1984.

Furthermore, the UPT Committee, created in the 1940's to oversee the project, and still in control of managing the property, doubted that money generated by the heliport would be sufficient to replace money from the parking lot. In which case the railroad would have to pay the difference. In 1984 the state legislature created the New Orleans Transportation Authority (NOTCA) designated to assume control of the multi-modal transportation center to replace the UPT Committee. The purpose of this authority was to prevent problems from the railroad in developing the center. Although the UPT has not yet given up its role, the NOTCA has been instrumental in the development of the heliport.

Problems continued from both a major developer and from the U.S. Postal Service, resulting in a decrease of land available for the heliport. A parking garage planned for a "mixed use" commercial development required the relocation of Julia Street taking land away from the heliport property. The final settlement of this issue resulted in 24,000 square foot (.56 acre) decrease of the heliport land. A more serious threat to the heliport came from the U.S. Postal Service. The Postal Service offered to lease the entire 6.2 acres from the UPT Committee to park Post Office vehicles. The UPT Committee considered this a more profitable arrangement than the construction of a heliport.

Final negotiations between the NOTCA and the UPT Committee resulted in the following agreement signed on July 2, 1985:

The U.S. Postal Service would lease 2.5 acres of the heliport site. Their rent was more than the UPT committee could get from the entire site being used as a parking lot. The U.S. Postal Service plans to move out of the downtown in a few years, so the lease is for five years with five one year options.

Part of the site (3.2 acres) would be leased from the UPT by the Aviation Board for the heliport with a right to expand onto the 2.5 acres occupied by the Postal Service when they leave. To be allowed this right the Aviation Board agreed to pave, light, stripe, and fence the 2.5 acre site for the Postal Service. And, it agreed to pay, beginning in the fourth year of the lease, 100% of the landing fees up to a maximum of \$25,000 and 20% of the landing fees above \$25,000 to UPT for 19 years.

As a result of these agreements, and the relocation of Julia Street, the total land available for the heliport was reduced from 6.2 acres to 3.2 acres. Construction began, and the heliport was opened January 21, 1986, in time for the 1986 Super Bowl.

Long before the heliport opened, the FAA identified a number of objects in the various approach paths that needed to be reduced in height or removed. Not all of these objects would be classified obstructions in the technical sense of the word. However, this technical distinction

would be small consolation if a helicopter were to hit the object during approach or departure. For those objects which are not technically considered obstructions, removal would increase the operational safety margin. In their drive to open the heliport in time for use during the Superbowl (January 1986), the heliport sponsor pursued a very aggressive construction schedule. Regardless of perceived urgency for completion there remained uncertainties of design as a result of the Julia Street relocation and the ongoing negotiations with the U.S. Postal Service. The FAA had concurred with the original heliport proposal with the provision that the sponsor take the necessary action on the identified objects. In the rush to open the heliport prior to the Superbowl, however, this was not done. Even afterwards, months went by before the sponsor began to make progress on the list of identified objects.

After the heliport became operational, some of the helicopter operators complained about nearby power lines and the height of the light bases. These concerns were expressed to the Aviation Board and the FAA. The following are examples of the airside modifications to be made. As of January 1988, two years later, some of these modifications had been completed, but others were still in process.

A light standard in the Post Office Parking was removed.

The wind sock will be moved from the southeast end of the automobile parking to a location near the landing pad.

The power lines parallel to the expressway will be marked with reflective marking.

The power lines west of the heliport (perpendicular to the expressway) were lowered and will be relocated underground at a later time.

The perimeter light standards will be lowered to a height no higher than the perimeter fence, and reduced in number.

The previously-removed touchdown pad lights (they were 14 inches high), will be replaced with flush-mounted lights.

A light standard in the southwest corner of the Superdome parking lot will be lowered.

The floodlights around the touchdown pad will be removed.

Although built to FAA standards, the main problem with the lights was that there was "too much" lighting. The flood lights were also placed too high. The pilots said that for night takeoffs the lights tended to destroy night vision during the transition from the lighted pad to the relative darkness beyond. The heliport has received an additional FAA grant to improve the lighting.

Because the heliport was opened with obstructions in the approach path and other objects, the heliport acquired a bad reputation. It is unlikely that this reputation will disappear overnight even when the airside modifications are complete. Opening and operating the heliport prior to the removal of these objects was a serious mistake that will color opinions toward the heliport for a long time.

During construction of the permanent heliport, the FAA approved the airspace for a temporary elevated heliport on the parking garage at the Superdome. It was permitted with the understanding that it would be closed when the permanent facility was completed. It was therefore officially closed on January 1, 1986, but helicopter operators continued to land. As a consequence, in February 1986 the FAA sent a letter to the state, who operates the Superdome, to remind them of the agreement to close the heliport, but the temporary heliport was still used. In April 1988, the FAA issued an "objectionable airspace finding" on the temporary heliport. This meant that the insurance of a helicopter operator using the temporary facility would not be valid. Since then use of the heliport dropped dramatically, but an occasional helicopter still lands.

During the time the temporary heliport was used, it operated in competition with the Downtown Heliport. The activity at the "temporary" heliport was greater than at the New Orleans Downtown Heliport. Heliport representatives feel that because it was established two years before the permanent facility opened it was able to attract customers and establish relationships with the helicopter operators who would otherwise use the Downtown Heliport. Activity at the "temporary" heliport was 7-10 operations per day, or approximately 3,103 per year as opposed to 522 per year (1986) at the New Orleans Downtown Heliport.

4.2.6 Owner/Operator

City of New Orleans owns the heliport and it is operated by New Orleans Aviation Board.

4.2.7 Revenue Sources

The New Orleans Downtown Heliport is supported as an subsidiary of the New Orleans International Airport (Moisant Field). The heliport originally charged landing and parking fees but these have been suspended to attract traffic.

4.2.8 Facilities

There is a 2,500 square foot terminal building that includes a passenger waiting area, pilot lounge, operations control room, service counters, communications, navigation and equipment room, and heliport offices.

Fuel, maintenance services, and hangar space are not available. Initially it was planned to provide these services when activity was high enough to warrant them. However, the primary use of the helicopter in the Gulf of Mexico area is industrial. Consequently, many operators have their own maintenance base, fueling facilities, and hangar space. It was

determined that these services would not be profitable at the downtown location.

The heliport is marked and lighted. There is an AWOS and related weather services. A PAPI light system is planned. There is also a parking lot for thirty cars.

4.2.9 Use

The primary users of the heliport are the oil and gas industry. Other users include corporate/executive, air ambulance, air taxi, and government operations.

4.2.10 Market/Service Area

The primary service area is a radius extending approximately 250 miles from New Orleans, including Baton Rouge, Morgan City and Houma. There is also some activity from as far away as eastern Texas.

4.2.11 Operational Characteristics

The New Orleans Downtown Heliport is open 24 hours a day, 365 days a year.

There is no formal written agreement with the local Air Traffic Control (ATC) facility, but the heliport is located within the New Orleans Terminal Control Area (TCA) and the pilots must conform to the rules regarding operation within a TCA.

There are no based aircraft at the heliport.

4.2.12 User Attitudes

User attitudes are an important concern with the New Orleans Downtown Heliport. The heliport is considered dangerous by some pilots, not only because of the lights and power lines in the immediate area, mentioned above, but because of the location of the heliport.

It is located near two elevated freeways and numerous tall buildings. Some users feel as if the heliport is "in a hole". Furthermore, the only way to get to the heliport is to transit across the entire city with few emergency landing places along the approach and departure routes. A forced landing on one of the nearby freeways in case of emergency is highly undesirable. It is becoming generally accepted that no single engine helicopter should attempt to use the heliport and that it is only marginally safe for twin engine aircraft.

Since the heliport is built to FAA design standards, it is recognized that some of these feelings about the heliport may be "psychological". It must also be accepted, however, that regardless of the basis of the users' uneasiness, the effect is the same. In other words, if pilots are afraid to use a heliport even for what appears to be "technically" unfounded reasons, the resultant lack of use of the facility is just as damaging as if from "technically sound" reasons. The reality of the situation is that the heliport is infrequently used.

The users say that the operational capabilities and limitations of the helicopter were not taken into consideration when the heliport was planned and built. They feel that those who designed the facility were not familiar enough with the helicopter operators. The users also said that consultants felt a need to "over design" heliports to justify themselves and that their opinions as experts convinced the FAA that all the extras are necessities. The operators feel a less elaborate facility at a better location would have better satisfied the need.

In considering user comments, one should recognize that many of the users strongly preferred the original "best" site rather than the compromise site that was chosen. In some cases, this may be the real issue of concern even though other reasons are cited. User complaints are certainly legitimate when they address the obstructions and other obstacles in the approach/departure paths. When they address other issues, however, it sometimes becomes difficult to sift through contradictory positions. Accepting some of the users' opinions at face value could lead one to the conclusion that the minimum airspace required for heliport operations (under visual flight rules (VFR)) is too small. Yet, on the national level, some of these same users (and others) have argued that the minimum VFR heliport airspace required by the FAA is too large. Obviously there is a contradiction between these two positions. Time and continued operation of the New Orleans Downtown Heliport may clarify this apparent contradiction. At this date, however, it is speculative to discuss what user opinions might have been if, prior to opening the heliport, the sponsor had completed action on all the obstructions and objects identified by the FAA.

The slump in the economic fortunes of the petroleum industry, while certainly affecting statewide helicopter operations, is not considered to be a significant factor in the low activity at the heliport. The total number of aircraft has decreased, but the total number of hours flown has increased between 1985 and 1986 (see Section 4.2.15). It is also believed that the potential recovery of the industry alone will not increase activity at the heliport.

Furthermore, addition of fuel, and maintenance, and hangar facilities at the heliport would not significantly increase operations. Unlike the Indianapolis area, there are few one-helicopter operators. Most of the operators in the Gulf area own 5 to 20 or more helicopters and therefore have their own fuel and maintenance facilities.

4.2.13 Access - Airside

There are two approach/departure paths to the New Orleans Downtown Heliport, an east approach and a west approach. The west approach is over the Pontchartrain Expressway, and the east over the railroad tracks.

4.2.14 Access - Landside

Ground access is from Julia Street or from Girod Street. There is a parking lot for 30 automobiles. Connections to additional types of ground transportation, such as taxi and limousines can be made from inside the terminal building.

4.2.15 Activity

In 1986 there were approximately 522 operations. In 1987 it was estimated that there were between approximately 5 and 10 operations per week, which would mean that activity would decrease to approximately 390 operations annually if activity remains at its present level. In the summer of 1988, the Republican National Convention will be held in New Orleans. This will mean greater activity at the heliport during that time.

A recent survey by the Helicopter Safety Advisory Conference (HSAC) indicates a reduction in the number of helicopters from 844 to 708 in the Gulf Coast area between 1985 and 1986. However, during this same time frame the number of annual hours flown increased from 620,663 to 691,655.

4.2.16 Type of Helicopters

The facility was built to accept almost any type and size of helicopter up to a Sikorsky S-61.

4.3 SOCIAL CONCERNS

4.3.1 Industrial Base

The heliport was primarily built with the oil and gas industry in mind, and secondarily for other types of operations. Unfortunately, the major downturn of the petroleum industry in the early 1980's meant a tremendous cutback in helicopter operations, as well as an economic crisis for the entire state that affected all types of helicopter users and potential users. However, as indicated in the recent HSAC survey, the level of helicopter activity rose between 1985 and 1986, although the number of helicopters in the area decreased during the same time frame. It is anticipated that the price of oil will rise and that offshore helicopter activity will increase in the early part of the next decade.

4.3.2 Neighboring Land Uses/Zoning

The New Orleans Downtown Heliport is surrounded by hotels, office buildings, and an in-town "high end" shopping center, that is currently under construction. The heliport is approximately three blocks from Poydras Street, the main office/business street in New Orleans and seven blocks from Canal Street, the major downtown retail street. It is adjacent to the Louisiana Superdome and near the new Convention Center.

The zoning classification at the heliport site is "CBD-2". This type of zoning allows retail, business, mixed use, offices, television studios, etc. The closest nearby use is "L-I" or light industrial.

4.3.3 Public Attitudes

The New Orleans Downtown Heliport was supported by the Chamber of Commerce and the business community. There have been no public complaints.

4.3.4 Governmental Attitudes

The heliport was backed, and has been continuously supported by, the City of New Orleans, the Regional Planning Commission (RPC), the New Orleans Aviation Board, and the Louisiana Department of Transportation and Development.

4.4 EXPECTED FUTURE OF HELIPORT

The heliport will remain in operation. There are plans to put in a PAPI lighting system, as well as more parking positions for aircraft, as soon as the U.S. Postal Service vacates its portion of the property.

With the closure of the temporary heliport, traffic at the Downtown heliport has increased. In addition, gradual traffic increases will be seen once all the objects in the approach and departure paths have been removed or lowered per FAA recommendations.

4.5 CONCLUSIONS

Most of the elements considered to be "just right" in the analysis of the Indianapolis Heliport (location, existing demand, political support, lack of public opposition, and financial backing) appeared to be present in the planning stages of the New Orleans Downtown Heliport. The only apparent difference was that there was no existing heliport with a proven location. This should not have presented an insurmountable obstacle since the opportunity was there to choose the best location.

The location originally selected by the consultant as the best site, and preferred by the local helicopter operators, was on the Mississippi River. Unfortunately, the "best" location was not available because of construction for the 1984 World's Fair. The alternate location for the heliport was a site that had been selected previously for a multi-modal transportation center because the railroad and the bus lines were there. Some operators feel that this compromise location was selected without sufficient regard for local operational characteristics and limitations.

The local operator's unhappiness about the site was further exacerbated by the failure of the heliport sponsor to remove or lower a number of objects in the approach and departure paths. FAA approval of the heliport was contingent upon the assumption that this would be done. Opening and operating the heliport prior to the removal of these objects was a serious mistake that will color opinions toward the heliport for a long time.

5.0 CINCINNATI - WESTERN & SOUTHERN HELIPORT (Mays Landing)

5.1 BACKGROUND

In 1984, there was a public use heliport in the downtown area of every major city in the state. Akron, Toledo, Dayton, Cleveland, Columbus and Cincinnati, as well as several intermediate cities such as Mansfield, Massillon and Zanesville all had a helicopter facility open to the public conveniently located near or in the Central Business District (CBD). One of the first of these to be established was the Western & Southern Heliport (Figure 6) in Cincinnati. Ironically, it was also the first Ohio CBD heliport to close.



Figure 6 Western & Southern Heliport

Source: Ohio Division of Aviation

5.2 HELIPORT DATA

5.2.1 Location

The Western & Southern Heliport, also known as Mays Landing, was located on the upper level of a parking structure in the heart of downtown Cincinnati. Located at 300 Sycamore Street, Cincinnati, Ohio, it was within a short walking distance of the riverfront (Ohio River) including Riverfront Stadium and Riverfront Coliseum as well as most of the major downtown commercial and business centers. There was direct elevator access between the heliport deck and street level. The interface with surface transport modes, i.e., automobile, taxi, bus, rail, and boats, was facilitated by convenient access to city streets, the adjacent freeways (I-71 and I-75), Cincinnati Union Station, and the waterfront. While Greater Cincinnati International Airport was only nine miles away, it was across the river in Kentucky and difficult to reach because of the natural bottlenecks at the bridges. Lunken Municipal Airport, a general aviation reliever facility, was closer and on the Ohio side of the river but presented similar bottlenecks due to terrain and city traffic congestion.

5.2.2 Classification

The Western & Southern Heliport was a private owned, public use heliport. It was licensed by the State of Ohio, Department of Transportation (ODOT), Division of Aviation as a commercial heliport. It received initial FAA Airspace Approval in January, 1969, provided:

- Operations are conducted in accordance with Visual Flight Rules (VFR) only.
- Two-way radio communication is maintained with Cincinnati (Lunken) Tower prior to departing from the heliport or entering the Cincinnati Municipal Lunken Airport Traffic Area, during the hours that the tower is in operation.

5.2.3 Cost

The entire cost of the planning, design and construction of the Western & Southern Heliport was borne by the several private entities involved. There were no Federal or state grants, nor any other public funds applied to the specific development of the project. The amounts associated with the establishment of the facility are proprietary.

5.2.4 Size

The Western & Southern Heliport was situated on the upper level of a 10-story parking structure. The deck elevation was 612 feet MSL (Mean Sea Level) and approximately 125 feet AGL (above ground level). Initially, almost the entire rooftop area was available for helicopter takeoffs, landings and parking. Except for a relatively small space for automobile parking and the area of the hangar/waiting room, usable space for helicopter operations was in excess of 35,700 square feet. It was

recorded that at one time (during a football game at adjacent Riverfront Stadium) as many as 22 helicopters were simultaneously parked on the roof with sufficient space left for safe takeoff and landing operations. Later, prior to its ultimate closing, the operating area was drastically reduced to a 60 foot x 80 foot (4800 square feet) space in one corner for emergency only. The remaining area was then used for parking automobiles (Figure 7).

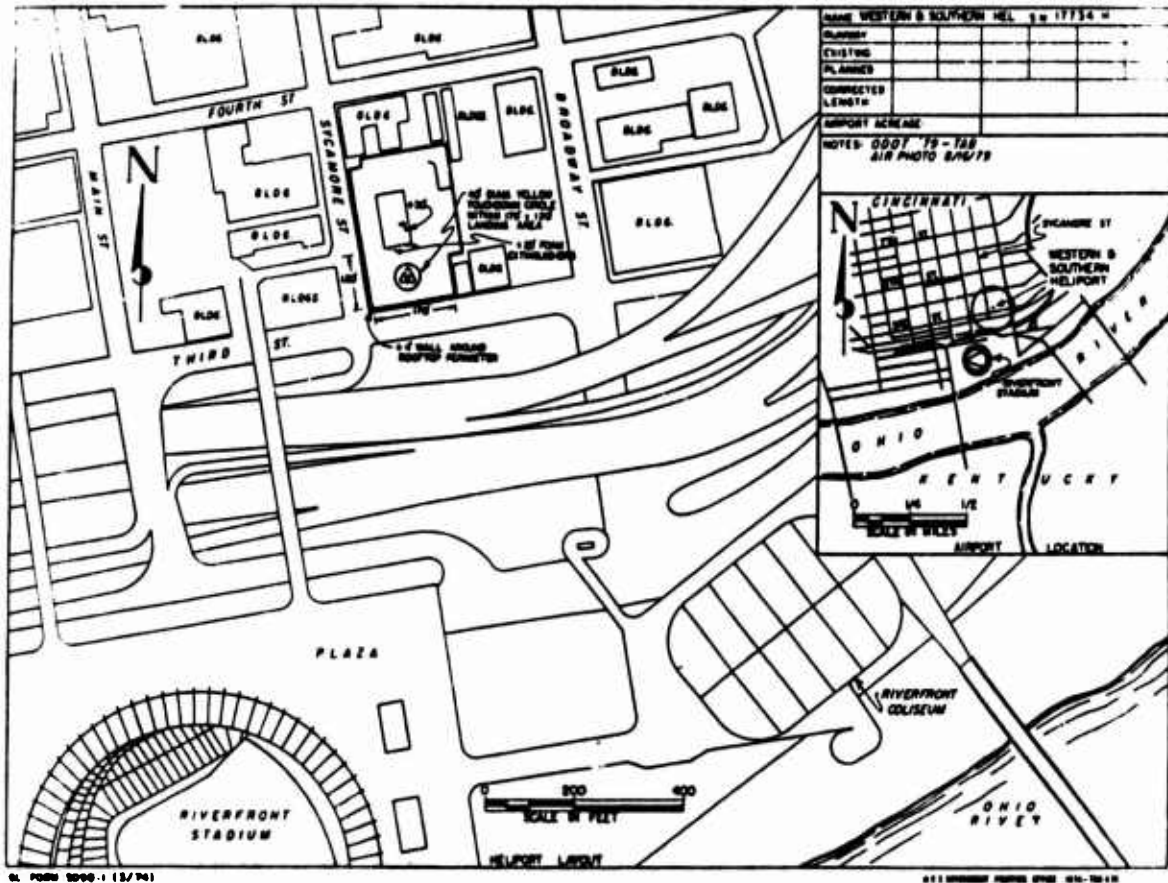


Figure 7 Site Plan - Western & Southern Heliport

Source: Ohio Division of Aviation

5.2.5 History

On September 10, 1968 the Western & Southern Life Insurance Company submitted a Notice of Landing Area Establishment, Form FAA-2681 (the precursor of Form FAA 7480) to the FAA for a "new landing area - heliport for public and private use. Also a hangar and base of operations for Ohio Valley Airways, helicopter operators, to serve the greater Cincinnati area."

Western & Southern proposed a concrete surfaced rooftop heliport with floodlights and heliport boundary lights to support an anticipated five based helicopters conducting an estimated 400 monthly operations (4800 annual operations) within five years of completion. No IFR operations were contemplated. The estimated completion date was September 1969.

Western & Southern correctly anticipated that noise abatement factors would not be a concern, citing the Ohio River and Interstate Highways 71 and 75 as approach routes that would attenuate the sounds of helicopter operations.

FAA VFR airspace approval was obtained in January 1969 and construction of the heliport facility on the garage roof was complete by April 1970. Cincinnati Airways, Inc., an FBO and air charter business, and AVCO Broadcasting Corporation, operators of a local radio station, executed a renewable one-year lease agreement with Western & Southern to manage and operate the heliport. Operations commenced on May 1, 1970 with twice daily (rush hour) "traffic-copter" reporting missions. By 1974 three helicopters were based at the heliport and by 1980 that figure had increased to seven. The FBO did a good business in helicopter sales and service, including major airframe and powerplant repairs, helicopter charters and powerline patrol contracts. Local fire safety ordinances prevented fuel facilities.

The heliport remained in service throughout the 1970's, enjoying a steady but not spectacular growth in business and operations. During this time there were no accidents or anything else to mar the safety record, and what few complaints or expressed concerns received were resolved quickly to everyone's satisfaction. The FBO managed the heliport for the Western & Southern Insurance Company during this time on the basis of a one-year lease agreement that was renewed annually with only modest rent increases consistent with the then current inflation rate and cost of doing business.

In 1980, Western & Southern demanded an almost 200% increase in the rent. The FBO, Cincinnati Airways, relocated to Lunken Airport where they have continued business to this day.

Western & Southern planned to convert the now vacant top level of its garage structure exclusively to automobile parking and to use the hangar as a car maintenance facility. However, in response to several requests from helicopter industry organizations, regional pilot groups and the ODOT Division of Aviation, Western & Southern agreed to maintain a portion of the original landing area open for "Emergency Use Only". A section 60 by 80 feet was cordoned off in one corner for that purpose. The manager of the parking operation was designated as the manager of the heliport also and the State of Ohio kept the heliport certificate (license) in effect on that basis.

In June 1984, however, the Western & Southern Life Insurance Company filed with the FAA a Notice of Landing Area Proposal for Deactivation of the heliport. The heliport has been closed since that time.

5.2.6 Owner/Operator

The parking structure on which the heliport was situated was owned by the Western and Southern Life Insurance Company of Cincinnati, Ohio. In May 1970, Western & Southern executed a renewable one year lease agreement

with Cincinnati Airways, Inc., a helicopter charter and FBO company and AVCO Broadcasting Corporation, operators of a local radio station for the management and operation of the heliport. Eventually, AVCO dropped out of the arrangement leaving Cincinnati Airways the sole lease holder.

5.2.7 Revenue Sources

The Western & Southern Heliport and the garage on which it was built were constructed entirely with private capital. While eligibility requirements for government (Federal and/or state) development grants could probably have been met without a great deal of difficulty, the sponsor elected to avoid the "red tape" and other obligations associated with typical grant agreements. The percentage of the design and construction cost of the heliport features, over and above those of just the parking facility itself, was small and outside funding support was considered unnecessary.

A landing fee was charged for use of the heliport (prior permission to land was not required while the FBO was open) and the FBO had its own price structure for parking and hangar storage of based and itinerant helicopters. In all, the lease agreement with Cincinnati Airways resulted in an average annual income for Western & Southern of approximately \$10,000 (1980 figures). In Western & Southern's opinion, it also represented a source of "lost revenue" (from the alternative use of the garage rooftop as a car park) in the neighborhood of \$40,000.

5.2.8 Facilities

The heliport featured a 2500 square foot hangar for helicopter storage and maintenance with complete facilities for major airframe and powerplant overhaul and repair. The hangar building also housed offices, an avionics repair shop, and a passenger waiting/terminal lounge with direct elevator access to the street. There was also vehicular access to the heliport deck via ramps within the garage and, plenty of parking space for cars in the building. Atop the hangar were fixed foam dispensers for fire suppression that were capable of flooding the entire rooftop in a matter of seconds. Activation of the foam fire extinguishers automatically sent an alarm to the nearest fire station as well.

Low intensity perimeter lights, a lighted wind sock and obstruction lights on all adjacent buildings, including the hangar/terminal, enhanced night VFR operations. There was no rotating beacon, however.

5.2.9 Use

The Western and Southern Heliport was established to serve as a base of operations for Cincinnati Airways, the FBO. Cincinnati Airways' primary business was helicopter air charter. Their initial major contract was with a local radio station to provide helicopter-borne traffic reports during the morning and evening rush hours. Later, contracts with power and light utility companies in Southwest Ohio added powerline surveys and patrols to the operational mix at the heliport and contracts with other radio and TV stations expanded the ENG use further. In addition to the air taxi (charter), electronic news gathering (ENG) and

powerline patrol work, various operators used the Western & Southern Heliport to support aerial photography, land survey, real estate inspection, aerial advertising, external lift (aerial crane) and crop spraying missions.

The FBO eventually became a sales and service center for a major helicopter manufacturer. Consequently, the heliport was used, as a "show room" for potential buyers of new helicopters as well as a maintenance center for existing customers. It was convenient for many of the helicopter operators supporting energy exploration and development in the coal fields of Appalachia and was used frequently. By virtue of its location, not only in downtown Cincinnati but also "right across the street" from Riverfront Stadium and Riverfront Coliseum, corporate and charter operators found the Western & Southern Heliport useful on weekends as well as during the week to drop off and pick up passengers attending sports events, concerts and other such activities in the vicinity.

5.2.10 Market/Service Area

The market area covered a radius of approximately 150 to 175 miles in all directions. This included the southern half of Ohio, including Dayton and Columbus; southeast Indiana, including Indianapolis; north central Kentucky, including Lexington and Louisville; and western West Virginia, including Parkersburg, Charleston and Huntington. It also served as the southern terminus of the (unofficial) Ohio "3-C" Corridor between Cleveland, Columbus and Cincinnati.

5.2.11 Operational Characteristics

Because of the nature of user requirements, the FBO's normal operating hours were 7:00 a.m. and 6:00 p.m. Monday through Friday. However, the heliport was generally available for use at night and on weekends through prior arrangement.

Operations were conducted under Visual Flight Rules (VFR) in accordance with the specifications of the FAA airspace-use approval. Under certain meteorological conditions, provisions were made for Special VFR (SVFR) operations, but these occurred rarely. Since the heliport was located just on the eastern edge of the Lunken Airport Traffic Area, two-way radio communication with Lunken Tower was required during hours of operation. Cincinnati Approach Control was generally able to provide flight following and surveillance services in and out of the downtown area.

5.2.12 User Attitudes

Users considered the Western and Southern Heliport one of the finest rooftop heliports in the country. Its only shortcoming was the lack of fueling facilities.

5.2.13 Access - Airside

Ingress and egress routes followed the Ohio River from the east and west, and along Interstates 71 and 75 from the north, northeast and south. Approaches and departures at the heliport were restricted to bearings of 090 degrees to 175 degrees (clockwise) from the pad.

5.2.14 Access - Landside

Ground access was from Sycamore Street. Heliport users could enter the parking garage from Sycamore and take the elevator up to top level. Personal automobile parking was available in the garage for heliport users. Passengers could meet taxis at ground level.

5.2.15 Activity

Helicopter activity at the Western & Southern Heliport enjoyed a slow but steady growth throughout the decade of the 1970's. Air taxi operations accounted for as much as 80% of the activity. The count of local versus itinerant traffic was split evenly with fewer than 10 military helicopters a year added to the total. There were no air carrier or commuter operations at the heliport at any time.

In its last year of operation (1980), the heliport began to experience a dramatic increase in its level of activity. A total annual operations count of 7420 in 1980 represented an overall increase of 26.9% over that of 1979. It can only be left to speculation whether that was the beginning of a new trend or only an aberrant fluctuation because 1980 was the last year formal accounts of traffic at the heliport were kept.

5.2.16 Types of Helicopters

There was no limit placed on the size and weight of any helicopter that could use the Western and Southern Heliport. The aircraft most often seen at the heliport reflected the general mix of the fleet in the area. The single-turbine powered Bell 206 series and Hughes (now McDonnell Douglas) 500 models were common as well as their respective piston-powered machines, the Bell 47 and the Hughes 269/300. Enstrom models accounted for the bulk of the remaining piston-powered type helicopters using the heliport. All of the helicopters based at the heliport were single engine piston or single engine turbine powered machines.

5.3 SOCIAL CONCERNS

5.3.1 Industrial Base

The Western and Southern Heliport was an ideally situated public use CBD heliport. It was in the very heart of the commercial district of the city immediately adjacent to its major sports, entertainment and cultural complexes. There was convenient access to other transportation modes. In addition, because of its location, passengers using the heliport were often able to walk to or from their final origin/destination.

5.3.2 Neighboring Land Use and Zoning

The site of the heliport was zoned C-2 "Commercial CBD Frame." This classification allows those types of businesses and facilities that would support the "CBD Core" (Zone C-1), including the establishment of a heliport as a permitted use (Figure 8).

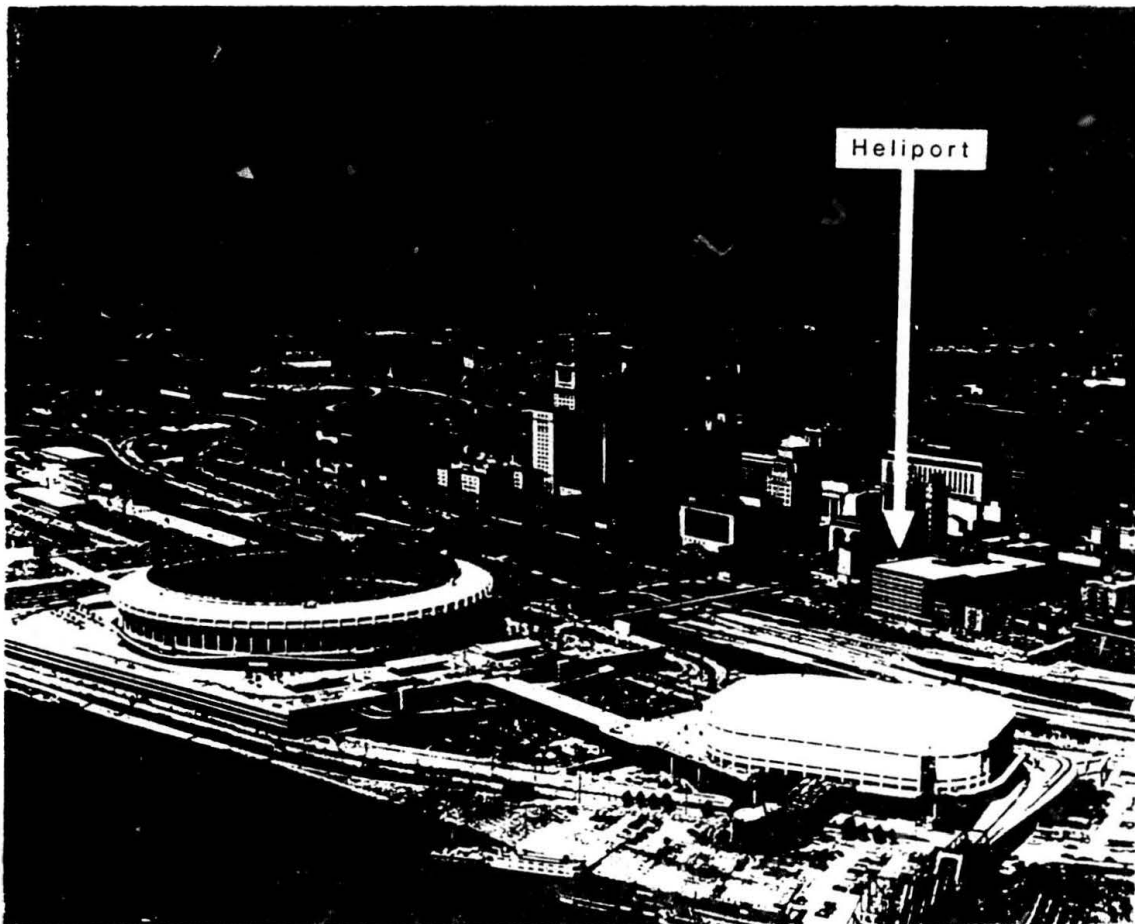


Figure 8 Downtown Cincinnati Showing Western & Southern Heliport

The location, on the rooftop of a 10 floor parking structure, afforded good approach and departure paths, above most obstacles, and had ingress/egress routes along rivers and freeways. The rooftop location also provided good security and kept the sound of the helicopter operations above and away from the people outdoors at street level.

It was the initial need of Cincinnati Airways (the FBO) for a base of operations that created the heliport. However, as subsequent events have borne out, a downtown location was not absolutely essential. In fact, the FBO, at its new ground-level facility at Lunken Airport, can now do a better business selling fuel which was not possible at the old rooftop location.

As has been the case at other downtown heliport establishments, where no appreciable demand existed previously, the heliport created its own market. While it never suffered from "under-use", operational growth was not dramatic until the last few years of its existence. To quote the owner of the FBO in the newspaper article announcing the closure of the heliport: "We might have been 10 years before our time," he said, "but now is when we need it." (Cincinnati Inquirer, 25 Sept. 1980). Indeed, the projected development of his business was just beginning to be realized when the heliport was forced to close.

5.3.3 Public Attitude

To continue the newspaper quote cited above, the FBO operator also said: "We've never had an incident or a problem." This was not due solely to good fortune. The FBO's policy was to pursue to a successful resolution any sort of public relations problem, usually on a personal basis. This aggressive approach forestalled difficulty and prevented any real public opposition to helicopter operations in the neighborhood.

The continued existence of any heliport is not so much dependent on an abundance of public support as it is on the lack of public opposition. A corollary to that theorem is that public support will not necessarily create political support for a heliport but public opposition will almost always result in a corresponding lack of support from the "powers that be".

5.3.4 Governmental Attitudes

The crucial element in both the continued existence and ultimate demise of the Western and Southern Heliport was "political" support. Not from the public sector, as is the case most often, but from the private sector. It required the support of the president of the insurance company, who had an appreciation of the value and benefits of a conveniently located CBD heliport, to keep it going regardless of "the bottom line." Unfortunately, when that gentleman died, so did the future of the heliport that bore his company's name. His successor did not share his enthusiasm for rotary-wing aviation and withdrew the company's support.

5.4 EXPECTED FUTURE OF HELIPORT

It is unlikely that the Western & Southern Heliport will be reopened. There is a strong desire on the part of state transportation officials and local planners to replace it with another conveniently located heliport in the downtown area. The most promising site is at the old Union Station on the west side of the CBD. There has been no significant progress toward that end, however, to date.

5.5 CONCLUSION

"The operation was a success, but the patient died." Although there was nothing wrong with the design, location, or operation of the facility, the Western and Southern Heliport did not survive. More money could be made parking cars on the roof of the garage than by landing helicopters on it. The lost revenue was roughly four times that which the heliport was then contributing.

The Western and Southern Heliport lasted as long as it did because of the support of the insurance company president. He understood that the value of a heliport is not always measured with dollars and cents on the bottom line. He was like a shopping mall manager who realizes that the expensive parking lot outside will never yield any return on the investment yet business would be practically impossible without it. In much the same way, the services the heliport provided the community, in promoting commerce, improving public safety and enhancing the prestige and image of downtown Cincinnati, were the intangible but nevertheless real benefits to be gained from having the heliport.

During the period of existence of the Western and Southern Heliport in Cincinnati, the Ohio State Airport System Plan contained no provisions for CBD public use heliports. There was, and still is, no local or regional heliport system plan. Therefore, planning, or the lack of it, had no impact on this case study.

Although it is difficult to isolate all possible factors that determine the success or failure of all heliports by studying just four, this study identified six key elements that would affect all heliports. The following is a brief summary of the conclusions reached in developing the case studies of the four existing heliports. Each element is reviewed in relation to its impact on all four heliports. The element that was significant to the success or failure of each heliport is discussed in detail.

The six key elements that were determined to be significant to the success or failure of the four study heliports are presented in Table 1, and discussed in sections 6.1 through 6.7.

TABLE 1 - ESSENTIAL ELEMENTS

ESSENTIAL ELEMENTS	HELIPORT			
	Nashua Street Boston	Indian- apolis	New Orleans	Cincin- nati
location	+	+	●	+
demand	+	+	+	+
local government attitude*	-	+	+	●
public attitude	●	●	●	●
financial backing	+	+	+	-
integral planning	+	+	-	●

KEY

+ = positive

- = negative

● = neutral/lack of interference

* The local level of government is the only one used here because it has the most influence on whether a heliport remains in operation. In states with active heliports, the state governments are usually supportive. This was the case with the four states in this study.

Table 2, on the next page, presents a summary of the characteristics of the four heliports.

TABLE 2 - HELIPORT CHARACTERISTICS

CHARACTERISTIC	HELIPORT			
	Boston Nashua Street Heliport	Indianapolis Downtown Heliport	New Orleans Downtown Heliport	Cincinnati Western & Southern
Owner	public	public	public	private
Operator	public	private	public	private
Opened	1965	1979/1985*	1986	1970
Type	ground	ground	ground	rooftop
Landing Pad	1	1	1	1
Parking Positions	1-2	7-20	1-2	1-22
Size	16,000 ft ² (0.37 acres)	5.5 acres	3 acres	35,700 ft ² (0.47 acres)
Annual Operations	10-12,000	10-12,000	3-500	7,420('79)
Primary Use	Corporate/ Executive	Mixed	Petro. Ind., Government	Corporate, ENG
Fuel Available	no	yes	no	no
Maintenance	no	yes	no	yes
Hangar Storage	no	yes	no	yes
Fees Charged	no	no	no	yes
Funding Sources	bonds thru Mass Aero Comm	operator/ IAA	part of airport system	operator
Economic Condition of Surrounding Area	good	good	poor	good
Neighboring Land Use	commercial	commercial/ industrial	commercial/ industrial	commercial
Heliport Study	in progress	none	yes (prior)	none
Political Support	state	all levels	all levels	minimal
Public Support	few aware	yes	yes	yes
Determination	successful	successful	unsuccessful	unsuccessful
Future of Heliport	in doubt	good	potential	closed

* First opened to public in 1979, formerly dedicated as FAA's first opened prototype heliport 1985.

6.1 KEY ELEMENTS

6.1.1 Location

The locations for the Indianapolis Downtown Heliport and the Nashua Street Heliport in Boston, evolved from previously established private use heliports, and therefore the locations were proven viable before they were opened to the public.

In New Orleans the opportunity was there to chose the best location. The site preferred by the planning consultant and the local helicopter operators could not be used. The location chosen, although not ideal, is reasonable with regard to its distance from the business and financial center of the city. However, the location of the heliport on the property itself, with regard to real and perceived obstructions, appears to have contributed greatly to the heliports low level of activity.

The heliport was technically designed to Federal Aviation Administration (FAA) standards, however, its location on the property due to the ultimate reduction in the space available for construction and the physical characteristics of the surrounding land uses with existing and newly created obstructions, has resulted in pilot concern about the safety of using the heliport. It is, therefore, concluded that the low activity of the heliport due to its location is the result of inadequate planning in the early stages of construction and development. Planning is further discussed in Section 6.6.

The Western & Southern Heliport was a privately owned public use facility, the choice for the location was made by the owner of the FBO who intended to run the facility. The parking garage was situated adjacent to the commercial district as well as its major sports, entertainment and cultural complexes of Cincinnati and had good approach and departure paths, was above most obstacles, and had ingress/egress routes along rivers and freeways.

6.1.2 Demand

The demand at the Indianapolis Downtown Heliport and Nashua Street in Boston was established by the time the sites became public use heliports. In both cases, the heliports evolved from private to public facilities because of the many requests from outside interests to use the existing facility.

The New Orleans Downtown Heliport is situated in an area that once had the heaviest concentration of civilian helicopter activity in the United States. Although the number of helicopters and the amount of helicopter activity declined significantly with the downturn of the petroleum industry early in the decade, there are still many helicopters operating in the region. As the oil industry has been slowly recovering, helicopter activity has been increasing (see Section 4.2.15). Although New Orleans Heliport activity is not expected to approach the level of 30,000 operations per year forecasted when regional activity was at its highest, the number of operations could be a lot higher than they are at the present time. It appears that if the heliport were not receiving political backing, the lack of demand would most likely be a factor that would close the heliport.

In Cincinnati, although there was no existing, or identified demand to the specific location, the FBO intended to create demand through its business. This plan was a success, during the last year of operation the heliport had almost 7,500 operations.

6.1.3 Local Government Attitudes

For over 20 years the Nashua Street Heliport in Boston enjoyed, if not active support, at least a lack of interference from Boston. Recently, however, the city has decided to use the land on which the heliport is located for an alternate purpose. Lack of local government support is likely to be the determining factor in closing the heliport. Local government support may be the overriding element in the success or failure of any heliport. No matter how well a heliport operates in the community, even if it has high activity levels and no public complaints, if the local government wants to close it, there may be no other choice.

Both the Indianapolis Downtown Heliport and the New Orleans Downtown Heliport have strong local government support. In both cities this support is expected to continue. In New Orleans, it is the city's support that keeps the heliport open. This again emphasizes the important role that the local government plays in heliport operation.

The Western and Southern Heliport in Cincinnati, was privately owned and therefore not dependent on the support of those in public office. There was no public controversy over its operation and therefore no politician became involved.

6.1.4 Public Attitude

In all four cities, the attitude of the general public has been that of non-interference. In Boston the majority of the people do not realize that the heliport exists. Both the Indianapolis and New Orleans heliports were supported by the local businesses and the Chambers of Commerce. In addition there have been no complaints from the general public about the heliports. In Cincinnati, the owner of the Fixed Base Operator (FBO) was able to forestall any sort of potential public opposition to the heliport on a personal basis. Overall, the public attitude for all four heliports was neutral.

It is difficult to determine from these four case studies whether the local government reflects the public attitude, or if where there is strong local government support for a heliport there are fewer public complaints. A third scenario could be that in places where there is no controversy, for whatever reason, the local government feels free to support a heliport. In none of the four cities studied was there any conflict between the local government and the public about the heliport.

6.1.5 Financial Backing

The Nashua Street Heliport is funded by the Massachusetts Aeronautics Commission (MAC). The Indianapolis heliport although currently subsidized by the Indianapolis Airport Authority (IAA), is expected to be

self-supporting by next year. New Orleans is supported as a subsidiary of the New Orleans International Airport. Even if these three heliports are not self-supporting now, they are still assured of financial backing.

The Western & Southern Heliport in Cincinnati had all the identified key elements in place for over 10 years. The ultimate demise of the heliport occurred when the owner of the building on which the heliport was located decided that an alternative use for the roof space would be more profitable. The owner therefore increased the rent to a point where the FBO that ran the heliport could no longer afford to stay at that location. Therefore, financial pressure closed the Cincinnati heliport.

6.1.6 Integral Planning

Integral planning is more complex than the other elements because so many different factors may be involved. However, the lack of effective planning can have a tremendous impact on the success of a heliport even if all the other key elements are potentially present. Planning in this sense means planning at all stages of development, whether done by an outside consultant or by local government or agencies. The capabilities and limitations of the helicopter, as well as the urban and aviation transportation infrastructure must be considered in the planning stages, particularly for heliports that are entirely new. The New Orleans Downtown Heliport is an example of inefficient planning at one or more of the critical stages of development.

The location of the New Orleans heliport (as described in Section 6.1) is one of the reasons for its low activity because of a concern for safety. Other factors, such as the poor economic condition of the oil and gas industry, may be important, but are difficult to isolate because the fact that some of the helicopter users still operating in the area will not use the heliport has the overriding impact.

Planning that considered all the factors and weighed all the consequences could have prevented many of the existing problems. For example, the operational limitations of the helicopter should have been considered during the design phase.

The New Orleans heliport was a brand new facility, therefore there was no previous experience of helicopter operation to the site. Both Nashua Street and Indianapolis started out as private use heliports with low activity that increased gradually. Cincinnati, although developed as a public use heliport, also started with relative low activity that increased slowly in accordance to the heliport's operational capability. The initial planning for the last three facilities was based on the operational requirements of the helicopter and the needs of the operators at each stage of development. It was effective planning since the heliports experienced growth in activity and demand. Adjustments for operational growth were made during the evolution of the heliport. However, there was no need for intensive planning for quick development and implementation.

Although there was no formal planning study for the Western & Southern Heliport, decisions on location and operational planning were made primarily by the owner of the FBO at a local level. Based on the success of the heliport it can be said that the planning was adequate.

There is no major development planned for Nashua Street in Boston, or was there for the Western & Southern in Cincinnati. Indianapolis was an existing facility with proven location, demand, and operational characteristics. The Indianapolis heliport was developed to improve its facilities and to increase its operational capacity. It was planned at the local level by those involved with its operation and no planning problems resulted.

6.2 FACILITIES

The results of this study also indicate that the type and extent of a heliport's facilities are not determinate factors regarding the success or failure of a heliport. This conclusion was reached by evaluating the equivalent activity levels of the three heliports. Nashua Street Heliport, which has no facilities beyond a bus shelter, and the Indianapolis Downtown Heliport, which has the most complete facilities of any discrete heliport in the country, have approximately the same number of annual activity. The New Orleans Downtown Heliport has low activity levels and extensive facilities.

It must be stressed that the activity increased significantly at Indianapolis after the installation of the complete services. However, in New Orleans, the indications are that even if fuel and maintenance are added the activity would not increase because many of the local helicopter operators have their own fuel and maintenance facilities nearby.

Therefore, the extent of the facilities may affect the degree of success in some locations depending on the circumstances, but it is not the determinate factor. This element must be thoroughly investigated in the planning stages and a complete evaluation of the local helicopter operational characteristics and local operator needs for each individual heliport be determined. Planners, whether formal consultants, or local government planners, must not be afraid to say that a very basic heliport (consisting of landing pad, a parking space and a wind sock), would be the most successful heliport for the location, if this has been determined by a thorough study of regional needs.

6.3 CONCLUSION

Six key elements are vital to the success of the heliports in this study. It is therefore difficult to prioritize them because any one of the six elements could sabotage a heliport. However, elements can have varying levels of importance depending on the heliport's stage of development/operation.

In the early stages, location and demand are essential. Without these two elements no heliport should be built. However, once these two are identified, the other four elements become more important.

Integral planning for all helicopter operational needs and characteristics, as well as the for social factors, is essential, no matter who is doing the planning.

If there is no financial backing after the right location and demand are identified and the planning is completed, no heliport can be built. Lack of financial backing can also close a heliport that is operationally successful, if the heliport is dependent on outside financial sources, whether for its location or operational funding.

Furthermore, without local government support all efforts in heliport development could be stopped. Public support, or at least public neutrality, which in turn influences the level of support from the local government, is also essential. Even an operational heliport that is doing well and has all the other elements in place, can be closed if the local government wants it closed.

In summary, all six elements are critical to the success or failure of heliports. The relative priority of these elements varies through the various stages of planning, development, and operation. A negative "score" on any of these elements can be expected to terminate the heliport.